EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L8	979905	(Organic waste OR garbage OR refuse OR trash OR waste OR compost OR rubbish OR junk OR litter OR debris OR scrap)	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 08:21
L9	10824316	(reduce$5 OR break$5 OR degrade$5 OR smash$5 OR fracture$5 OR rupture$5 OR shatter$5 OR split$5 OR crack$5 OR sever$5 OR condens$5 OR shrink$5 OR demolish$5 OR destroy$5 OR crush$% OR separat$5 OR shred$5 OR mash$5 OR mill$5 OR chop$5)	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 08:21
L10	3038866	(dry OR press OR evaporat$5 OR sublimat$5)	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 08:21
L11	90657	L8 AND L9 AND L10 AND (biodegradable OR compostable OR ecological OR eco-friend$5 OR recyclable$5 OR green OR environmental)	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 08:21
L12	627	502/401.ccls.	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 08:24
L13	107	502/401.ccls. AND 8 AND 9 AND 10	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 08:26
L14	39	502/401.ccls. AND 8 AND 9 AND 10 AND (binder OR egg white OR honey OR carbohydrate OR starch OR flour OR sugar) AND (heat OR steam OR convection OR thermal oil OR combustion OR fluid compression OR electricity OR microwave OR contact OR dielectric OR conduction OR radiant OR infrared)	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 08:44

EAST Search History

L15	2	502/401.ccls. AND 8 AND 9 AND 10 AND (binder OR egg white OR honey OR carbohydrate OR starch OR flour OR sugar) AND (heat OR steam OR convection OR thermal oil OR combustion OR fluid compression OR electricity OR microwave OR contact OR dielectric OR conduction OR radiant OR infrared) AND water vapor AND (activate OR activated)	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 08:47
L16	0	biodegradable binder AND (heat activation OR heat activated)	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 08:48
L17	2425	binder AND (heat activation OR heat activated)	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 11:49
L18	182	68/1.ccls.	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 11:55
L19	60332	"241".clas.	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 11:55
L20	6916	"241".clas. AND 8 AND 9	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 13:00
L21	3	"241".clas. AND 8 AND 9 AND 17 AND 10	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 15:07
L22	263	119/172	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 15:07
L23	124	119/172.ccls.	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 15:08
L24	113	119/172.ccls. AND 8	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 15:08

EAST Search History

L25	84	119/172.ccls. AND 8 AND 9 AND 10	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 15:13
L26	120	502/439.ccls. AND 8 AND 9 AND 10	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/17 15:14
S1	6	"5275321"	US-PGPUB; USPAT	ADJ	ON	2007/10/16 11:06
S2	979905	(Organic waste OR garbage OR refuse OR trash OR waste OR compost OR rubbish OR junk OR litter OR debris OR scrap)	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/16 11:08
S3	10824316	(reduce$5 OR break$5 OR degrade$5 OR smash$5 OR fracture$5 OR rupture$5 OR shatter$5 OR split$5 OR crack$5 OR sever$5 OR condens$5 OR shrink$5 OR demolish$5 OR destroy$5 OR crush$% OR separat$5 OR shred$5 OR mash$5 OR mill$5 OR chop$5)	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/16 11:09
S5	3038866	(dry OR press OR evaporat$5 OR sublimat$5)	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/16 11:13
S6	280976	S2 AND S3 AND S5	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/16 11:19
S7	90657	S2 AND S3 AND S5 AND (biodegradable OR compostable OR ecological OR eco-friend$5 OR recyclable$5 OR green OR environmental)	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/16 11:20
S8	10738	S7 AND (smell$5 OR odor$5 OR odour%5 OR stink$5 OR offensive OR stench)	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/16 11:21
S9	627	502/401.ccls.	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/16 11:22
S10	13	S8 AND S9	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2007/10/16 11:23

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=> d que l19
L2            1 SEA FILE=WPIX ABB=ON  PLU=ON  US20040127355/PN
L3              QUE  ABB=ON  PLU=ON  ORGANIC(2A)(WASTE? OR MATTER? OR SOL
                ID? OR TRASH? OR GARBAGE?)
L5          568 SEA FILE=WPIX ABB=ON  PLU=ON  L3 AND (BIODEGRAD? OR
                BIO(A)DEGRAD?)
L6          201 SEA FILE=WPIX ABB=ON  PLU=ON  L5 AND SOLID?
L7           24 SEA FILE=WPIX ABB=ON  PLU=ON  L6 AND (ODOR? OR ODOUR? OR
                SMELL?)
L8            1 SEA FILE=WPIX ABB=ON  PLU=ON  L7 AND L2
L9            1 SEA FILE=WPIX ABB=ON  PLU=ON  L7 AND (DRY OR DRIED)(2A)PIEC
                E?
L10          13 SEA FILE=WPIX ABB=ON  PLU=ON  L7 AND (HEAT? OR TEMP?)
L11           1 SEA FILE=WPIX ABB=ON  PLU=ON  L7 AND (BIODEGRAD? OR
                BIO(A)DEGRAD?)(3A)BINDER
L12          24 SEA FILE=WPIX ABB=ON  PLU=ON  (L7 OR L8 OR L9 OR L10 OR
                L11)
L14             QUE  ABB=ON  PLU=ON  ORGANIC(2A)(WASTE? OR MATTER? OR TRA
                SH? OR GARBAGE?)
L15          21 SEA FILE=WPIX ABB=ON  PLU=ON  L14 AND L12
L16           2 SEA FILE=WPIX ABB=ON  PLU=ON  L15 AND CARBOHYDRAT?
L17          14 SEA FILE=WPIX ABB=ON  PLU=ON  L15 AND (WATER OR LIQUID
                WATER)
L18          21 SEA FILE=WPIX ABB=ON  PLU=ON  (L15 OR L16 OR L17)
L19          18 SEA FILE=WPIX ABB=ON  PLU=ON  L18 AND (PY<2003 OR PRY<2003
                OR AY<2003)


=> d que l34
L1            1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  US20040127355/PN
L20      125121 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ORGANIC(2A)(WASTE? OR
                MATTER? OR TRASH? OR GARBAGE?)
L21           5 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L20 AND (BIODEGRAD? OR
                BIO(A)DEGRAD?)(3A)BINDER
L22        5250 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L20 AND (BIODEGRAD? OR
                BIO(A)DEGRAD?)
L23           0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L22 AND (DRY OR DRIED)(2A)
                PIECE?
L25           1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L20 AND L1
L26           0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L20 AND  B09B003?/IPC
L27        2620 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L20 AND  B09B003?/IC
L28          41 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L27 AND MICROBIAL?
L29           0 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 AND PICES?
L30           1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 AND PIECE?
L31           3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 AND (ODOR? OR ODOUR?
                OR SMELL?)
L32           8 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L21 OR L23 OR (L25 OR
                L26) OR (L29 OR L30 OR L31)
L33           4 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 AND CARBOHYDRAT?
L34          12 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L32 OR L33


=> d que l41
L35       39425 SEA FILE=PASCAL ABB=ON  PLU=ON  ORGANIC(2A)(WASTE? OR
                MATTER? OR TRASH? OR GARBAGE?)
L36           0 SEA FILE=PASCAL ABB=ON  PLU=ON  L35 AND (BIODEGRAD? OR
                BIO(A)DEGRAD?)(3A)BINDER
L37        4681 SEA FILE=PASCAL ABB=ON  PLU=ON  L35 AND MICROBIAL?
L38           0 SEA FILE=PASCAL ABB=ON  PLU=ON  L37 AND (CARBOHYDRAT?(3A)BI
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                NDER? OR BINDER?)
L40             0 SEA FILE=PASCAL ABB=ON  PLU=ON  L38 AND (DEVICE? OR
                APPARATUS?)
L41             0 SEA FILE=PASCAL ABB=ON  PLU=ON  L36 OR L38 OR L40


=> d que l53
L35         39425 SEA FILE=PASCAL ABB=ON  PLU=ON  ORGANIC(2A)(WASTE? OR
                MATTER? OR TRASH? OR GARBAGE?)
L46             1 SEA FILE=JAPIO ABB=ON  PLU=ON  L35 AND (BIODEGRAD? OR
                BIO(A)DEGRAD?)(3A)BINDER
L47          9307 SEA FILE=JAPIO ABB=ON  PLU=ON  ORGANIC(2A)(WASTE? OR
                MATTER? OR TRASH? OR GARBAGE?)
L48           128 SEA FILE=JAPIO ABB=ON  PLU=ON  L47 AND (BIODEGRAD? OR
                BIO(A)DEGRAD?)
L49             0 SEA FILE=JAPIO ABB=ON  PLU=ON  L48 AND CARBOHYDRAT?(3A)BIND
                ER?
L50             2 SEA FILE=JAPIO ABB=ON  PLU=ON  L48 AND BINDER
L51            70 SEA FILE=JAPIO ABB=ON  PLU=ON  L48 AND (WATER OR LIQUID
                WATER)
L52             2 SEA FILE=JAPIO ABB=ON  PLU=ON  L51 AND PIECE?
L53             4 SEA FILE=JAPIO ABB=ON  PLU=ON  L46 OR L49 OR L50 OR L52


=> d que l59
L35         39425 SEA FILE=PASCAL ABB=ON  PLU=ON  ORGANIC(2A)(WASTE? OR
                MATTER? OR TRASH? OR GARBAGE?)
L47          9307 SEA FILE=JAPIO ABB=ON  PLU=ON  ORGANIC(2A)(WASTE? OR
                MATTER? OR TRASH? OR GARBAGE?)
L54             0 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L35 AND (BIODEGRAD? OR
                BIO(A)DEGRAD?)(3A)BINDER
L55          1165 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L47 AND (BIODEGRAD? OR
                BIO(A)DEGRAD?)
L56             0 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L55 AND (CARBOHYDRAT?(3A
                )BINDER? OR BINDER)
L57             0 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L55 AND SOLID?(3A)PIECE?

L58             2 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L55 AND PIECE?
L59             2 SEA FILE=COMPENDEX ABB=ON  PLU=ON  L54 OR (L56 OR L57 OR
                L58)


=> dup rem l19 l34 l41 l53 l59
L41 HAS NO ANSWERS
FILE 'WPIX' ENTERED AT 12:20:17 ON 05 OCT 2007
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FILE 'COMPENDEX' ENTERED AT 12:20:17 ON 05 OCT 2007
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of Elsevier Engineering Information Inc.
PROCESSING COMPLETED FOR L19
PROCESSING COMPLETED FOR L34
PROCESSING COMPLETED FOR L41
PROCESSING COMPLETED FOR L53
PROCESSING COMPLETED FOR L59
L60 35 DUP REM L19 L34 L41 L53 L59 (1 DUPLICATE REMOVED)
ANSWERS '1-18' FROM FILE WPIX
ANSWERS '19-29' FROM FILE HCAPLUS
ANSWERS '30-33' FROM FILE JAPIO
ANSWERS '34-35' FROM FILE COMPENDEX

=> d 1-18 full

L60 ANSWER 1 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
DUPLICATE 1
AN 2004-269932 [25] WPIX Full-text
DNC C2004-105041 [25]
DNN N2004-213513 [25]
TI Waste-processing outcome used to facilitate storage, transfer, or exchange of **organic matter** before it is discarded or used for another purpose, comprises collection of **dry pieces** of **organic matter**
DC D16; P43
IN MANU A
PA (WHIR-C) WHIRLPOOL CANADA INC
CYC 103
PI WO 2004024355 A1 20040325 (200425)* EN 62[9]
US 20040127355 A1 20040701 (200444) EN
<--
AU 2003266880 A1 20040430 (200462) EN
ADT WO 2004024355 A1 WO 2003-CA1395 20030912; **US 20040127355 A1** Provisional **US 2002-410327P 20020913**; AU 2003266880 A1 AU 2003-266880 20030912; **US 20040127355 A1** US 2003-661567 20030915
FDT AU 2003266880 A1 Based on WO 2004024355 A
PRAI **US 2002-410327P 20020913**
US 2003-661567 20030915
IPCR B09B0001-00 [I,A]; B09B0001-00 [I,C]; B09B0003-00 [I,A]; B09B0003-00 [I,C]; C05F0017-02 [I,A]; C05F0017-02 [I,C]; C05F0009-00 [I,A]; C05F0009-00 [I,C]
AB WO 2004024355 A1 UPAB: 20050528
NOVELTY - An outcome from waste-processing process or apparatus comprises a collection of pieces of **organic matter** . The **pieces** are **dry** enough to reduce **odors** produced by microbial growth.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:
(1) production of **dried pieces** of **organic waste** by reducing raw **organic waste** to pieces, and drying the raw **organic waste** to a moisture content at which it is free of **odors** caused by microbial activity before or after it is reduced;
(2) production of a **solid** by reducing raw **organic waste** to pieces, producing a mixture of the pieces, **water**, and **biodegradable binder**, forming the mixture into a shape, and drying the shaped mixture;
(3) an apparatus for processing **organic waste** , comprising a receiving area or module having a first opening for admitting **organic matter** into the receiving area, side(s) defining a plenum in communication with the opening for receiving and **temporarily** storing **organic matter**, a reducing implement for reducing **organic matter** to pieces, and a second opening for discharging reduced **organic matter** from the plenum; and a processing area or module having a first opening connected with the second opening of the receiving module for

receiving pieces of **organic matter** from the receiving area, a form for supporting the **organic matter** while it dries into a **solid**, and a second opening for removing the **solid** from the processing area; and

(4) a process of operating a program making use of **organic matter**, by encouraging persons to produce collections or **solids**, collecting the collections or **solids**, and making use of the collected collections or **solids**.

USE - The outcome is useful as an interim form of **organic matter** created and existing after the **organic matter** is deemed to be wasted by a person, household, or business. It can be used to facilitate the storage, transfer, or exchange of the **organic matter** before it is discarded or used for another purpose. (All claimed)

ADVANTAGE - The **organic matter** pieces are free of **odors** from microbial activity for at least 1 month when stored indoors.

DESCRIPTION OF DRAWINGS - The figure is a flow chart for making outcomes.

TECH ORGANIC CHEMISTRY - Preferred Dimensions: The **organic matter** pieces have no dimension longer than 2 cm.
Preferred Properties: The outcome has moisture content of at most 20% (preferably 5-15%) calculated based on the weight of **water** in the outcome divided by the weight of the outcome including the **water**.
Preferred Process: The pieces are bound together with a **biodegradable binder**, compostable **binder**, or **carbohydrate** binder. The pieces may be closely packed or compacted together.

FS CPI; GMPI
MC CPI: D05-A04A

L60 ANSWER 2 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2007-611331 [58] WPIX Full-text
CR 2002-394821; 2006-778371
DNC C2007-218364 [58]
TI Treatment of **organic waste** to produce **odorless** beneficial organic humus material, involves biologically treating the waste in a micro-electron acceptor environment, and simultaneously nitrifying and denitrifying the waste in the environment
DC A97; D15; D16
IN MORRIS J W; NORTHROP J
PA (MORR-I) MORRIS J W; (NORT-I) NORTHROP J
CYC 1
PI US 20070144965 A1 20070628 (200758)* EN 29[8]
ADT US 20070144965 A1 CIP of **US 2000-709171 20001110**; US 20070144965 A1 CIP of US 2003-600936 20030620; US 20070144965 A1 CIP of US 2005-106751 20050415; US 20070144965 A1 US 2006-592513 20061103
FDT US 20070144965 A1 CIP of US 6689274 B; US 20070144965 A1 CIP of US 6908495 B
PRAI US 2006-592513 20061103
US 2000-709171 20001110
US 2003-600936 20030620
US 2005-106751 20050415
IPCI C02F0003-30 [I,A]; C02F0003-30 [I,C]
AB US 20070144965 A1 UPAB: 20070911
NOVELTY - Treatment of **organic waste** involves biologically treating the waste in a micro-electron acceptor (MEA) environment, where oxygen is added to maintain less than 2 mg/l of dissolved oxygen throughout the MEA environment. The waste is simultaneously nitrified and denitrified in the environment. The increased conversion of at least one nutrient from soluble to particulate form is induced in the environment by micro-electron acceptor phosphorus accumulating organisms (MEAPAOs).

DETAILED DESCRIPTION - Treatment of **organic waste** involves biologically treating the waste in a micro-electron acceptor (MEA) environment, where oxygen is added to maintain less than 2 mg/l of dissolved oxygen throughout the MEA environment. The waste is simultaneously nitrified and denitrified in the environment. The increased conversion of at least one nutrient from soluble to particulate form is induced in the environment by micro-electron acceptor phosphorus accumulating organisms (MEAPAOs). The method further involves addition of chemicals to provide an energy source for the denitrification of nitrite or nitrate by facultative heterotrophic denitrifiers. INDEPENDENT CLAIMS are included for the following:

(1) creating microorganisms adapted to grow in a low electron acceptor environment and without a physically separated anaerobic environment involving biologically treating waste in MEA environment;

(2) an **odorless** beneficial organic humus material that are harvested from the **odorless**, biologically mediated treatment process;

(3) a system for biologically mediated treatment of **organic wastes** comprising unit for directing waste to a **temporary** anaerobic unit; and unit for directing the **temporary** anaerobic unit effluent stream to a microorganism growth managing and enhancer unit having MEA environment and a biomass having a population of MEAPAOs;

(4) a population of MEAPAOs adapted to grow in MEA environment without a physically separated and defined anaerobic environment, where MEAPAOs are capable of increased conversion of nutrient from soluble to particulate form the MEA environment; and

(5) a population of micro-organisms comprising MEAPAOs that are capable of increased conversion of nutrient from soluble to particulate form in a micro-electron acceptor environment without a physically separated and defined anaerobic environment.

USE - For treating **organic waste** to produce **odorless** beneficial organic humus material (claimed); for treating **solid** and liquid **organic wastes** , particularly animal farm wastes for removing nutrients e.g. phosphorus and nitrogen from waste; for treating municipal wastewater streams and for producing microbial cell protein of microbial cell mass for single cell protein production from **biodegradable** materials e.g. **solid** and/or **water** borne, and nitrogen source.

ADVANTAGE - The process is operated at low electron acceptor concentrations while maintaining high quantities of diverse populations of microorganisms. The process solves many of the problems associated with municipal, domestic, industrial, food industry, animal husbandry and other **organic wastes**, by providing an attractive and efficient way to resolve ecological problems associated with the treatment of **organic wastes.** The process solves **odor** emission problem common to **organic wastes** as well as the problem associated with high nutrient effluent discharge concentrations through the efficient, **odorless**, biologically mediated conversion of waste excrement materials or a vast array of other **organic wastes** into stable, economically and/or ecologically beneficial materials. The process biologically treats and stabilizes **organic waste**, such as animal excrement, containing concentrations of potentially polluting or environmentally harmful substrates. The process performs simultaneous nitrification and denitrification on **organic waste** streams and converts soluble phosphorus to particulate form. The process produces humus material having commercial value, does not having unpleasant **odor**, and can be safely maintained in open storage without significant migration of compounds. The process also manages **water**, which can be combined with **organic waste** to provide a nutrient rich aqueous fertilizer, which can be used to irrigate crops, or as a clean, generally low nutrient liquid, that with further processing is potentially suitable for discharge to a **water** body. The process treats an influent waste stream containing phosphorus/nitrogen ratios higher than 0.17 (preferably greater than or equal to 0.30 - 0.50) and still have effluent discharges with low quantities of phosphorus. The process converts approximately greater than or

equal to 50% of the influent waste stream soluble phosphorus into particulate form, incorporated into the humus material, and removed when that humus material is harvested. The process maintains a sufficient quantity of mutations, thus providing for an efficient, dynamic biologically mediated conversion process. The process allows the microbial community to adapt in a workable period to achieve a dynamic equilibrium. The organic and nitrogen loading allows an energy, carbon and nitrogen balance to occur between the microbial populations of facultative heterotrophic fermentors, autotrophic nitrifiers, facultative heterotrophic denitrifiers and autotrophic ammonium denitrifiers. The control of dissolved oxygen levels and/or oxygen additions creates and maintains the populations of facultative heterotrophic fermentors, autotrophic nitrifiers, facultative heterotrophic denitrifiers and autotrophic ammonium denitrifiers.

DESCRIPTION OF DRAWINGS - The figure shows a schematic of the predominant interrelationships of the **organic waste** , the major microbial groups responsible for biologically mediated conversion, the intermediate breakdown substances, and the final products of the process.

TECH ENVIRONMENT - The MEA environment includes populations of facultative heterotrophic fermentors, autotrophic nitrifiers, heterotrophic facultative denitrifiers, heterotrophic PAOs, heterotrophic MEAPAOs, and autotrophic ammonium denitrifiers. The MEA environment comprises biological microorganisms regenerating at a rate of greater than or equal to 1015 base pair replications/second. The MEA environment comprises concentrations of nitrate, nitrite, and dissolved oxygen below 5 mg/l. The MEA environment comprises concentrations of oxygen below 0.1 mg/l, and nitrate concentrations of below 0.5 mg/l. The waste comprises a concentration of biological oxygen demand (BOD) and total Kjeldahl nitrogen (TKN) of at least 100 mg/l, and a TKN to total BOD ratio of more than 1:20. The MEA environment contains at least 1017 biological microorganisms with a doubling time of less than or equal to 10 days, or at least 1013 biological microorganisms with an average doubling time of less than 30 days/pound of total BOD or TKN in combined waste stream. The wetlands environment is dewatered and the **solids** are harvested to recover a beneficial humus material. The humus material are mixed with at least one of clay, sand, silt, mud, soil, gravel, dust, mine tailings and dredgings, polymers, plastics or other inert or inorganic materials.

INORGANIC CHEMISTRY - The nutrient is phosphorus, or nitrogen.

FS CPI

MC CPI: A12-W11J; D04-A01J; D04-A01K2; D04-B06; D04-B07B; D04-B07C; D05-A04A; D05-H04; D05-H05

L60 ANSWER 3 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2005-140361 [15] WPIX Full-text

CR 2001-024560

DNC C2005-045693 [15]

TI Disposing of **organic waste** and **wastewater** involves forming a primary waste pond and establishing a microbiological methane fermentation zone within it

DC D15; D16

IN GREEN F B; OSWALD W J

PA (REGC-C) UNIV CALIFORNIA

CYC 1

PI US 6852225 B1 20050208 (200515)* EN 14[2]

ADT US 6852225 B1 Provisional **US 1999-130210P 19990420**; US 6852225 B1 **US 2000-552576 20000419**

PRAI **US 2000-552576 20000419**
US 1999-130210P 19990420

IPCR C02F0003-00 [I,A]; C02F0003-00 [I,C]; C02F0003-28 [I,A]; C02F0003-28 [I,C]

AB US 6852225 B1 UPAB: 20050708

NOVELTY - Disposing of waste comprises forming at least one primary waste pond partially constructed from earthwork and positioned within an outer pond that overlays the primary waste pond surrounding at least an upper lateral portion of it, and establishing a stable microbiological fermentation zone within each primary was pond.

DETAILED DESCRIPTION - Disposing of waste comprises forming at least one primary waste pond partially constructed from earthwork and positioned within an outer pond that overlays the primary waste pond surrounding at least an upper lateral portion of it, and establishing a stable microbiological fermentation zone within each primary was pond. At least one of the primary waste ponds has a bottom that is at least 6 meters below a surface of the outer pond and is at least partially separated from the outer pond by a wall. The microbiological methane fermentation zones comprises facultative heterotrophic bacteria and methane bacteria.

USE - The method is useful for disposing of **organic waste** and **wastewater** (e.g. sewage). The methane produced can be used as a fuel.

ADVANTAGE - The method for waste treatment is simpler, safer, and less costly than the current method. The method eliminates the need to remove, handle, and dispose of sludge residual over a long period of time, usually several decades. This advantage is particularly important because of new pollution control legislation that requires grit, floatable materials and fresh or partially stabilized sewage sludge, unless **heat** treated or heavily disinfected with chlorine, to be regarded as highly infectious and potentially toxic or hazardous. The method achieves purification and enrichment of methane gas emerging from the zones of the fermentation; reduction, precipitation and removal of heavy metals; immobilization of parasites; **bio-degradation** of many toxic compounds and significant removal (at least 60%) of biochemical oxygen demand (BOD). As the fermentation zones in advanced facultative ponds (AFPs) is constructed of earthwork and plastics, they are sufficiently inexpensive that they can be made large enough to permit almost infinite retention and very complete methane fermentation of the settleable volatile **solids**. The method controls sulfide **odors** from methane fermentation. The method biologically increases pH near the pond surface, thus retaining hydrogen sulfide in solution in the pond **water**. The biological increasing of the pH level near the pond surface increases the rate of die-away of pathogenic bacteria. The method transforms proteins and other nitrogen compounds to nitrogen gas and detoxifies chlorinated hydrocarbons and volatile organic compounds. The method captures and stores gases evolved from methane fermentation, and removes heavy metals, while establishing meromixis in fermentation cells or zones within primary wastewater ponds.

FS CPI

MC CPI: D04-B10; D05-A04A; D05-C14

L60 ANSWER 4 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2003-313237 [30] WPIX Full-text

DNC C2003-082231 [30]

TI Treatment of biologically convertible matter, such as manure involves providing non- **biodegradable** supports having microorganisms in biologically active condition immobilized on the supports

DC D15; D16

IN DEBLOIS M; GOULET J

PA (DEBL-I) DEBLOIS M; (GOUL-I) GOULET J; (REDA-N) REDAL INC

CYC 99

PI WO 2003022984 A2 20030320 (200330)* EN 32[5]
AU 2002325743 A1 20030324 (200461) EN
US 20050037452 A1 20050217 (200514) EN

ADT WO 2003022984 A2 **WO 2002-CA1404 20020910**; AU 2002325743 A1 **AU 2002-325743 20020910**; US 20050037452 A1 **WO 2002-CA1404 20020910**; US 20050037452 A1 US 2004-488110 20040923

FDT AU 2002325743 A1 Based on WO 2003022984 A
PRAI **GB 2001-21735 20010910**
IC ICM C12M001-40
IPCR C12M0001-40 [I,A]; C12M0001-40 [I,C]
AB WO 2003022984 A2 UPAB: 20060119
NOVELTY - A biologically convertible matter is treated by providing non-**biodegradable** supports (43) having microorganisms in biologically active condition immobilized on the supports.

DETAILED DESCRIPTION - Treatment of biologically convertible matter, involves providing non **biodegradable** supports having microorganisms in biologically active condition immobilized on the supports; disposing the supports in an arrangement to enable free circulation of a gas through the arrangement; and contacting the biologically convertible matter with the supports under conditions to produce and separate a conversion material or to concentrate and fix elements of the biologically convertible material.

An INDEPENDENT CLAIM is also included for a bioreactor for treating biologically convertible matter, comprising an upper distribution chamber (12); a bioreactor chamber (14) disposed below the distribution chamber; feeding mechanism for feeding the biologically convertible matter from the distribution chamber into the bioreactor chamber; non-**biodegradable** supports mounted in the bioreactor chamber having microorganisms in a biologically active condition immobilized on the supports, where the supports are arranged to cause the microorganisms to contact the biologically convertible matter and convert into a conversion material or concentrate and fix elements of the biologically covertible matter; a collection chamber operatively connected to the bioreactor chamber to collect the conversion material or recover the fixed elements; mechanism for withdrawing the conversion material or fixed elements from the collection chamber.

USE - The invention is used for treating biologically convertible matter, e.g., manure, milk fraction or a milk derivative, solvent, **organic** or inorganic **matter**, processed food, a food by-product, heavy metal or an aqueous solution (claimed). It is also used for the treatment of gas, liquid and/or **solid** .

ADVANTAGE - The invented method converts biologically convertible matter into reusable or detoxified material in a cost-effective manner.

DESCRIPTION OF DRAWINGS - The figure is a longitudinal cross-section view of a modular bioreactor.

Distribution chamber (12)
Bioreactor chamber (14)
Supports (43)

TECH BIOLOGY - Preferred Components: The microorganisms comprise yeast, yeast like and/or bacteria. They also comprise yeast cells. They are from a wild type strain or genetically modified strain of yeast.
Preferred Material: The conversion material comprises a biomass composed of treated biologically convertible matter and/or microorganisms detached from the supports.
Preferred Method: The microorganisms allowed to fix, absorb, metabolize, alter, convert, digest or degrade the biologically convertible matter. They are also allowed to cause fermentation of the biologically convertible matter. The method comprises converting at least 0.1-90% biologically convertible matter into the conversion material. The elements in the biologically convertible matter are concentrated, fixed and recovered. A carbon source, nitrogen source, mineral, salt, amino acid or a product containing same is added to biologically convertible matter before contacting it with the microorganisms. The bioconvertible matter is treated in a continuous or a batch process. The microorganisms are immobilized onto the support under conditions promoting formation of glycoleme or thixotrope.
ORGANIC CHEMISTRY - Preferred Component: The **carbohydrate**

source can be starch, amygladin, arbinose, cellobiose, esculin, fructose, galactose, glucose, lactose, maltose, mannitol, mannose, melezitose, melibiose, raffinose, rhamnose, ribose, salicin, sorbitol, sucrose, trehalose, xylose, cellulose and/or organic acids.

MECHANICAL ENGINEERING - Preferred Components: The bioreactor comprises air inlet disposed on the collection chamber and arrange to allow air to circulate biologically through the bioreactor. The distribution chamber comprises an exhaust arranged to allow exit of air ascending in the bioreactor.

POLYMERS - Preferred Material: The supports are made of a polymer.

ABEX EXAMPLE - Pig manure was injected at the top of a bioreactor. As pig manure which was rich in ammonia, the treatment of liquid containing yeast must be supplemented with a source of carbon, e.g., molasses and supplied with continuous oxygen. The bioreactor can be aerated at the bottom with polluted air from a pig sty that contained ammonia. The yeast or microorganisms to be immobilized on the supports was made to the capacity of the species to fix and to transform the substrate to be treated. The supports used in the bioreactor chamber were perforated polyester or vinyl membranes. They permitted fixation of yeast and exchanged of oxygen. The lattice was maintained vertically by a mechanical support. The result was the formation of a biomass from pig manure and a decreased of the **odors** resulting from a removal of ammonia by the yeast.

FS CPI

MC CPI: D05-A03A; D05-A04A

L60 ANSWER 5 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2004-212014 [20] WPIX Full-text

DNC C2004-084023 [20]

TI Composition for adding to sewage pipe systems or septic tanks, comprises yarrowia lipolytica, bacillus subtilis and nonionic surfactant

DC D15; D16

IN DEY E

PA (MILJ-N) MILJOEKEMI MIKAB OCH LIMTEK AB

CYC 1

PI SE 2002000618 A 20030902 (200420)* SV 19[0]

ADT SE 2002000618 A **SE 2002-618 20020301**

PRAI **SE 2002-618 20020301**

IPCR C02F [I,S]; C02F0003-34 [I,A]; C02F0003-34 [I,C]

AB SE 200200618 A UPAB: 20050528

NOVELTY - The aqueous composition comprises Yarrowia lipolytica and Bacillus subtilis microorganisms, in addition to a nonionic surfactant.

DETAILED DESCRIPTION - An aqueous composition comprises Yarrowia lipolytica and Bacillus subtilis microorganisms, in addition to a nonionic surfactant. INDEPENDENT CLAIMS are also included for the following:

(1) Sewage pipe system and septic maintenance method in which the above composition is added to the system or a tank; and

(2) Isolated bacteria Bacillus subtilis deposited as NCIMB 41118

USE - For the maintenance of sewage pipe or drain systems and septic tanks (claimed). Examples of septic tanks include toilets in caravans, aircraft, trains, buses, boats or holiday homes. The composition helps break down all organic material (e.g. human waste products and toilet paper) into a substantially anaerobic liquid

ADVANTAGE - Organic material is broken down into a substantially anaerobic liquid free from environmentally harmful substances, allowing the material to be disposed of naturally or used as fertilizer. No mechanical parts are required for this maintenance work.

TECH ORGANIC CHEMISTRY - The composition also contains at least one hydrolytic enzyme (preferably lipase, amylase or cellulose), a binder

/ emulsifier (preferably natural rubber), an anti-foaming agent and a **biodegradable** biocide. Preferably the composition comprises 0.1-10 wt.% Yarrowia lipolytica, 0.1-10 wt.% Bacillus subtilis, 0.1-20 wt.% lipase, 0.1-20 amylase, 0.1-10 cellulase, 0.01-10 wt.% binder / emulsifier, 0.1-20 wt.% nonionic surfactant, 0.1-10 wt.% anti-foaming agent, 0.01-5 wt.% **biodegradable** biocide and the balance **water.** The use concentration for the composition is 1:10 to 1:30.

BIOLOGY - The composition contains Yarrowia lipolytica CCY 29 26 31.

ABEX EXAMPLE - A composition suitable for dilution with tap **water** in a ratio of 1:24 comprised 0.1 wt.% xanthan gum, 3 wt.% sodium lauryl sulphate, 2 wt.% polypropylene glycol 2000, 0.1 wt.% Bronopol, 0.1 wt.% lemon fragrance, 2 wt.% lipase, 0.5 wt.% amylase, 5 wt.% cellulose, 0.5 wt.% Bacillus subtilis (NCIMB 41118), 0.5 wt.% Yarrowia lipolytica (CCY 29 26 31) and 86.2 wt.% **water.** Addition of 0.2 l diluted composition to a septic tank resulted in all the **solid organic waste** being broken down into a substantially **odourless** liquid.

FS CPI

MC CPI: D04-A01J; D04-A02; D04-B10; D05-A02; D05-A04A; D05-H04

L60 ANSWER 6 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2001-388867 [41] WPIX Full-text

CR 1993-109220; 1999-539169

DNC C2001-118568 [41]

TI Simultaneous aeration and agitation of hydrocarbon waste products involves using small reduced pressure microbubbles dispersed and maintained in hydrocarbon waste products to interact with aerobic bacteria

DC D15

IN BLOUGH R S; HOAGE J B; MESSER L A

PA (SEWA-N) SEWAGE AERATION SYSTEMS INC

CYC 1

PI US 6245237 B1 20010612 (200141)* EN 6[5]

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ADT US 6245237 B1 Div Ex **US 1991-687373 19910418**; US 6245237 B1 CIP of **US 1992-969001 19921030**; US 6245237 B1 Cont of **US 1992-996968 19921223**; US 6245237 B1 **US 1995-472195 19950607**

FDT US 6245237 B1 Div ex US 5194144 A; US 6245237 B1 Cont of US 5951867 A

PRAI **US 1995-472195 19950607**
US 1991-687373 19910418
US 1992-969001 19921030
US 1992-996968 19921223

IPCR B01F0003-04 [I,A]; B01F0003-04 [I,C]; B01F0007-00 [N,A]; B01F0007-00 [N,C]; C02F0003-02 [I,A]; C02F0003-02 [I,C]; C02F0003-12 [I,A]; C02F0003-12 [I,C]

AB US 6245237 B1 UPAB: 20060117

NOVELTY - Simultaneous aeration and agitation of hydrocarbon waste products involves moving atmospheric pressure air through confined zone into larger zone containing hydrocarbon waste products; dispersing microbubbles into waste products while agitating; and maintaining dispersed microbubbles in waste products to increase lateral oxygen transfer and replace oxygen used by aerobic bacteria.

DETAILED DESCRIPTION - Simultaneous aeration and agitation of hydrocarbon waste products involves moving atmospheric pressure air through confined zone into larger zone of reduced air pressure which contains hydrocarbons waste products. Small reduced pressure microbubbles are dispersed into the waste products while agitating. The microbubbles have 0.25 mm average size. The dispersed microbubbles are maintained in the waste products to

increase lateral oxygen transfer to replace oxygen used by aerobic bacteria. An INDEPENDENT CLAIM is also included for a method for decomposing waste material by aerobic action.

USE - The method is used for simultaneously aerating and agitating hydrocarbon waste products, biological waste material, or **biodegradable** material.

ADVANTAGE - The reduced air pressure small microbubbles suspended and maintained in waste material provide replacement molecules for dissolved oxygen assimilated by the aerobic bacteria during metabolic breakdown of **organic matter** into carbon dioxide and **water** waste. It results in no **odor**, low suspended **solids**, reduced biochemical oxygen demand, and low coliform counts.

TECH ENVIRONMENT - Preferred Method: The microbubbles formed from air are maintained with the waste products for up to 10-12 hours. They are produced by drawing the atmospheric pressure air through an orifice into an expansion chamber and then into the waste products. They are produced and dispersed by air tube into a propeller rotating at high speed.

FS CPI

MC CPI: D04-A01J; D04-A01K; D04-B04

L60 ANSWER 7 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1999-337968 [28] WPIX Full-text

DNC C1999-099451 [28]

TI Bioreactor for aerobic treatment of aqueous wastes

DC D15

IN PELLETIER D

PA (DESS-N) DESSAU SOPRIN; (SOPR-N) SOPRIN ADS

CYC 80

PI WO 9925657 A2 19990527 (199928)* EN 32[4]
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AU 9912211 A 19990607 (199943) EN
<--
CA 2221407 A1 19990518 (199945) EN
<--

ADT WO 9925657 A2 **WO 1998-CA1076 19981118**; CA 2221407 A1 **CA 1997-2221407 19971118**; AU 9912211 A **AU 1999-12211 19981118**

FDT AU 9912211 A Based on WO 9925657 A

PRAI **CA 1997-2221407 19971118**

IPCR C02F0003-12 [I,A]; C02F0003-12 [I,C]; C02F0003-22 [I,A]; C02F0003-22 [I,C]

AB WO 1999025657 A2 UPAB: 20050521

NOVELTY - Aerobic bioreactor for treating aqueous **wastes** at high **organic** and **solids** loadings, enabling the production of flocs and their subsequent removal in a settling tank, thereby yielding a significant purification performance of the aqueous waste. The invention also allows efficient and environmentally sound treatment of the treated liquid effluent.

DETAILED DESCRIPTION - The bioreactor has a reservoir (2) with opposite aqueous waste inlet and outlet (15,17), at least one oxygen containing medium, e.g. air, diffuser (40) and air lift pump, e.g. Venturi pump, (38) located in the lower part of the reservoir, and a channel system (34) located in the reservoir upper part. The air lift pump and the oxygen containing medium diffuser enable homogeneous oxidation of the mixed liquor, i.e. aqueous waste and biomass capable of **biodegrading** the waste.

USE - For treatment of domestic, industrial or agricultural aqueous **wastes** rich in **organic** content, either soluble or particulate.

ADVANTAGE - The efficiency of **biodegradation** of **organic waste** is increased. The treated **water** is substantially free of phosphorus and nitrogen and the product sludge has a better fertilizing quality. The aqueous waste

does not need prior treatment. The reactor is free of moving mechanical parts. The **odor** emission is controlled.

DESCRIPTION OF DRAWINGS - The drawing shows a structure and configuration of the bioreactor

Bioreactor reservoir (2)
Inlet and outlet (15,17)
Channel system (34)
Venturi pump (38)
Air diffuser (40)

FS CPI
MC CPI: D04-A01K

L60 ANSWER 8 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1999-311574 [26] WPIX Full-text
DNC C1999-091941 [26]
TI Treatment of animal waste to produce dry **solid**, useful as fertilizer
DC A14; A97; C04; D22
IN BILLINGS R
PA (BILL-I) BILLINGS R
CYC 1
PI US 5897785 A 19990427 (199926)* EN 5[1]
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ADT US 5897785 A **US 1997-863776 19970527**
PRAI **US 1997-863776 19970527**
IPCR C02F0001-32 [I,A]; C02F0001-32 [I,C]; C02F0001-54 [I,C]; C02F0001-56 [I,A]; C05F0003-00 [I,A]; C05F0003-00 [I,C]
AB US 5897785 A UPAB: 20060115
NOVELTY - Treatment of animal waste by diluting with **water**, exposing to ultraviolet (UV) radiation, mixing with cationic polymers and removing **water**, is new.

DETAILED DESCRIPTION - Treatment of animal waste (I) comprises:
(a) diluting (I) with **water** to form a thin waste slurry;
(b) exposing the slurry to UV radiation to break the deoxyribonucleic acid (DNA) coding in the bacterial, fungal, viral and algal constituents of (I) to ozonate (I);
(c) mixing very high charge cationic polymers with the waste slurry to cause **solids** to react with the polymers and separate from the **water**;
(d) removing the **water** from the **solids**; and optionally
(e) drying the **solids** and using the dry **solid** as fertilizer.

USE - The method is used to process animal waste, particularly poultry, swine or cattle waste, or other **biodegradable organic waste** to produce a **solid** product which can be used as a fertilizer.

ADVANTAGE - The process removes **odour** and eliminates bacterial, fungal, viral and algal constituents. The **solid** material is rich in nutrients. Liquid is recycled in the process. Removal of **water** decreases the volume of waste by 75%.

DESCRIPTION OF DRAWINGS - The figure shows the equipment used in the process. Animal house (10); Scraper (12); Sloping beach (18); Dilution tank (20); Container (38); Polymer mix tank (40); Belt press (41); Dry waste tote (44); Waste booth (64).

TECH ENVIRONMENT - Preferred Process: Step (b) comprises alternate exposure of (I) to UV radiation of wavelength 253.7 nm to destroy DNA and wavelength 218-220 (preferably 218) nm to produce ozone which oxidises (I). **Water** removed during step (d) is recycled and used in step (a). (I) is diluted in (a) to a ratio of 1 part poultry waste to 10 parts **water**.

POLYMERS - The polymers are polyacrylamide copolymers.

FS CPI
MC CPI: A04-D04A; A12-W04B; C04-B04B; C14-T04; D09-A01A; D09-A02

L60 ANSWER 9 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1998-481095 [41] WPIX Full-text
DNC C1998-145600 [41]
DNN N1998-375364 [41]
TI Anaerobic digestion and thermal drying of e.g. domestic wastes - avoids composting and dries product directly and thoroughly in process minimising disposal and self-sufficient in energy, maximising process **heat** recovery and electricity generation
DC D16; P41; P43
IN RINDELAUB F; RINDELAUB F A E
PA (LINM-C) LINDE AG; (LINM-C) LINDE BRV BIOWASTE TECHNOLOGIES AG; (RIND-I) RINDELAUB F
CYC 79
PI WO 9838145 A1 19980903 (199841)* DE 26[3]
<--
AU 9864981 A 19980918 (199908) EN
<--
NO 9904060 A 19991022 (200001) NO
<--
EP 961762 A1 19991208 (200002) DE
<--
CZ 9902996 A3 20000412 (200026) CS
<--
HU 2000000911 A2 20000828 (200055) HU
<--
KR 2000075536 A 20001215 (200131) KO [3]
<--
JP 2001513067 W 20010828 (200156) JA 18
<--
US 6423532 B1 20020723 (200254) EN
<--
EP 961762 B1 20040929 (200464) DE
DE 59812031 G 20041104 (200474) DE
ES 2227813 T3 20050401 (200524) ES
NO 320188 B 20051107 (200577) NO
ADT WO 9838145 A1 **WO 1998-EP888 19980217**; AU 9864981 A **AU 1998-64981 19980217**; DE 59812031 G **DE 1998-59812031 19980217**; EP 961762 A1 **EP 1998-910688 19980217**; EP 961762 B1 **EP 1998-910688 19980217**; DE 59812031 G **EP 1998-910688 19980217**; ES 2227813 T3 **EP 1998-910688 19980217**; JP 2001513067 W **JP 1998-537256 19980217**; NO 9904060 A **WO 1998-EP888 19980217**; EP 961762 A1 **WO 1998-EP888 19980217**; CZ 9902996 A3 **WO 1998-EP888 19980217** ; HU 2000000911 A2 **WO 1998-EP888 19980217**; KR 2000075536 A **WO 1998-EP888 19980217**; JP 2001513067 W **WO 1998-EP888 19980217**; US 6423532 B1 **WO 1998-EP888 19980217**; EP 961762 B1 **WO 1998-EP888 19980217**; DE 59812031 G **WO 1998-EP888 19980217**; NO 320188 B **WO 1998-EP888 19980217** ; CZ 9902996 A3 **CZ 1999-2996 19980217**; KR 2000075536 A **KR 1999-707595 19990820**; NO 9904060 A **NO 1999-4060 19990823**; NO 320188 B **NO 1999-4060 19990823**; US 6423532 B1 **US 1999-367954 19990824**; HU 2000000911 A2 **HU 2000-911 19980217**
FDT DE 59812031 G Based on EP 961762 A; ES 2227813 T3 Based on EP 961762 A; NO 320188 B Previous Publ NO 9904060 A; AU 9864981 A Based on WO 9838145 A; EP 961762 A1 Based on WO 9838145 A; CZ 9902996 A3 Based on WO 9838145 A; HU 2000000911 A2 Based on WO 9838145 A; KR 2000075536 A Based on WO 9838145 A; JP 2001513067 W Based on WO 9838145 A; US 6423532 B1 Based on WO 9838145 A; EP 961762 B1 Based on WO 9838145 A;

DE 59812031 G Based on WO 9838145 A
PRAI **EP 1997-810096 19970224**
IC ICM C05F017-00; C05F009-00
IPCR B03B0009-00 [I,C]; B03B0009-06 [I,A]; B09B0003-00 [I,A]; B09B0003-00 [I,C]; C05F0017-00 [I,A]; C05F0017-00 [I,C]; C05F0009-00 [I,A]; C05F0009-00 [I,A]; C05F0009-00 [I,C]; C05F0009-00 [I,C]
AB WO 1998038145 A1 UPAB: 20060201
A biological- and thermal treatment for wastes, especially domestic refuse, is new in that a portion (27) of the waste (1) amenable to composting, is subjected instead, to anaerobic digestion (5, 28). Digested residues (34) so obtained, are dried without composting, to a dry matter fraction of 90%.
Also claimed is a process to treat a fine fraction of the waste. This is counter washed (39) to remove adherent organics, producing inert material, with at most 5% dry **organic matter.** Its washing employs condensate (36), in a closed circuit.

ADVANTAGE - The process minimises the weight and volume of waste which must be sent to landfill. This reduces the costs of disposal, and benefits the environment. The quantity of dry matter in the final products is maximised. This means that trouble-free disposable- and recyclable materials are maximised. Anaerobic fermentation produces and recovers, a maximum of useful biogas for drying, unlike composting. The quantity of biogas is not only sufficient for this purpose; excess is available for electricity generation. Drying reduces the mass of material to be disposed of, below levels hitherto achievable.

ABDT WO1998038145
A biological- and thermal treatment for wastes, especially domestic refuse, is new in that a portion (27) of the waste (1) amenable to composting, is subjected instead, to anaerobic digestion (5, 28). Digested residues (34) so obtained, are dried without composting, to a dry matter fraction of 90%.
Also claimed is a process to treat a fine fraction of the waste. This is counter washed (39) to remove adherent organics, producing inert material, with at most 5% dry **organic matter.** Its washing employs condensate (36), in a closed circuit.
ADVANTAGE
The process minimises the weight and volume of waste which must be sent to landfill. This reduces the costs of disposal, and benefits the environment. The quantity of dry matter in the final products is maximised. This means that trouble-free disposable- and recyclable materials are maximised. Anaerobic fermentation produces and recovers, a maximum of useful biogas for drying, unlike composting. The quantity of biogas is not only sufficient for this purpose; excess is available for electricity generation. Drying reduces the mass of material to be disposed of, below levels hitherto achievable.
PREFERRED PROCESS
Drying proceeds ≤ 95 wt% dry matter. The dried matter is graded and/or classified (12), obtaining various size fractions (13, 14), differing materials and/or different specific gravities or masses. The fermented material (34) retains at most, 30 wt% of **bio-degradable** dry matter before fermentation. The waste, possibly with a pre-sorted fraction is subjected to a separation process, preferably a treatment in an extrusion press (25), manual sorting, mechanical sorting, screening or a combination. This separates it into **solid** bodies (26) and pulp (27).
Pulp contains largely **bio-degradable** organics.
This is digested anaerobically (5; 28). The extrusion press operates at a final pressure of at least 700 bar. Biogas (7) arising is burned, preferably in a power generation unit (BHKW, 30). Recovered **heat** (33) and/or electricity is used for drying. The process is self sufficient in energy. Liquid (11) separated from the fermented residue (34) is evaporated to at least 35% dry matter. The fluid

portion before thickening (35) is neutral to slightly acid, especially pH 5-6, suppressing ammonia formation (and any **odours** released) during evaporation (35). (MSS)

FS CPI; GMPI
MC CPI: D05-A04A

L60 ANSWER 10 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1998-144514 [13] WPIX Full-text
DNC C1998-047200 [13]
DNN N1998-114335 [13]
TI Rotatable apparatus used as composting drum, cement kiln or ball mill - has polygonal cross-section and divided internally into a series of transverse chambers and longitudinal sections
DC D15; D16; L02; P41
IN BENSON J M; SUNDARAM T R
PA (BENS-I) BENSON J M; (SUND-I) SUNDARAM T R
CYC 1
PI US 5716013 A 19980210 (199813)* EN 21[9]
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ADT US 5716013 A **US 1995-429496 19950426**
PRAI **US 1995-429496 19950426**
IPCR B02C0017-00 [I,A]; B02C0017-00 [I,C]; B02C0017-18 [I,A]; C05F0017-02 [I,A]; C05F0017-02 [I,C]
AB US 5716013 A UPAB: 20060114
A rotatable apparatus comprises an elongate vessel (8) rotatable about its longitudinal axis. It has a polygonal cross-section and is divided into a number of transverse chambers and longitudinal sections. Material is fed into an inlet (10) and removed via outlets (29). Fresh air is introduced into the vessel and spent air is removed. Electrical power and signals can enter and leave the apparatus. **Water** is introduced into the vessel. Sensors monitor conditions at various points along the apparatus. A programmable controller connected to the sensors monitors and controls the conditions within the apparatus. The vessel is rotated either with its axis of rotation horizontal or at an angle inclined by up to ten degrees to the horizontal. Material is continuously loaded into and unloaded from the apparatus.

USE - The vessel is claimed for the composting of **bio- degradable organic waste**, e.g. municipal **solid** waste, yard waste or sewage sludge. It is also described as being suitable for use as a cement kiln or ball mill.

ADVANTAGE - The apparatus composts material in such a way that the formation of **odorous** and/or explosive gases is minimised. It can be economically constructed on site and operated cost-effectively.

ABDT US5716013
A rotatable apparatus comprises an elongate vessel (8) rotatable about its longitudinal axis. It has a polygonal cross-section and is divided into a number of transverse chambers and longitudinal sections. Material is fed into an inlet (10) and removed via outlets (29). Fresh air is introduced into the vessel and spent air is removed. Electrical power and signals can enter and leave the apparatus. **Water** is introduced into the vessel. Sensors monitor conditions at various points along the apparatus. A programmable controller connected to the sensors monitors and controls the conditions within the apparatus. The vessel is rotated either with its axis of rotation horizontal or at an angle inclined by up to ten degrees to the horizontal. Material is continuously loaded into and unloaded from the apparatus.
USE
The vessel is claimed for the composting of **bio-degradable organic waste**, e.g. municipal **solid** waste, yard waste or sewage sludge. It is also described as being suitable for use as a cement kiln or ball mill.
ADVANTAGE

The apparatus composts material in such a way that the formation of **odorous** and/or explosive gases is minimised. It can be economically constructed on site and operated cost-effectively.
PREFERRED APPARATUS
The transverse chambers each have a polygonal cross-section, preferably triangular. The vessel preferably has a hexagonal transverse cross-section, in which case six transverse triangular chambers can be formed at two or more longitudinal sections of the vessel. The vessel is made from plates which form its outside, the internal transverse chambers and bulkheads or transfer doors between longitudinal sections. Circular rings are attached to the exterior of the vessel via gusset plates which are spaced to support the vessel and to allow it to rotate by providing force to the rings. A dual rotary joint is attached to the periphery of the vessel for simultaneous input of fresh air and exhausting of stale air. Air is supplied to each chamber to maintain aerobic conditions.
Preferably the volume, velocity and **temperature** of the air is remotely controlled. The vessel has a diameter of more than fifteen feet. The sensors monitor **temperature** and gaseous content of the chambers.

FS CPI; GMPI
MC CPI: D04-B10; L02-A; L02-C02

L60 ANSWER 11 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1999-076707 [07] WPIX Full-text
DNC C1999-023335 [07]
DNN N1999-056323 [07]
TI **Solid** fuel manufacturing method - involves performing anaerobic treatment of organic refuse to isolate inseparable impurity which is then mixed with anaerobic treatment sludge and casting obtained mixture to get **solid** fuel
DC H09; P43
IN SUZUKI T; YAMADA N
PA (EBAR-C) EBARA CORP
CYC 1
PI JP 10316982 A 19981202 (199907)* JA 4[2]
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ADT JP 10316982 A **JP 1997-144586 19970520**
PRAI **JP 1997-144586 19970520**
IPCR B09B0003-00 [I,A]; B09B0003-00 [I,C]; C10L0005-40 [I,C]; C10L0005-42 [I,A]; C10L0005-44 [I,A]; C10L0005-46 [I,A]
AB JP 10316982 A UPAB: 20060114
The organic refuse or the general **waste** containing **organic** refuse (1) is subjected to **biodegradation** by performing anaerobic treatment, for isolation of inseparable impurity (8). The anaerobic treatment sludge (7) after separation from the remnant treatment liquid (4) is mixed with the separated impurity (8). The moisture in the mixture is adjusted and then cast to get the **solid** fuel (21), using a compression molding machine (20).
USE - For use in electric power generation.
ADVANTAGE - Reduces installation and processing expense. Is burnt with stable **heating** value. Suppresses generation of unpleasant **smell** in reservoir.
ABDT JP10316982
The organic refuse or the general **waste** containing **organic** refuse (1) is subjected to **biodegradation** by performing anaerobic treatment, for isolation of inseparable impurity (8). The anaerobic treatment sludge (7) after separation from the remnant treatment liquid (4) is mixed with the separated impurity (8). The moisture in the mixture is adjusted and then cast to get the **solid** fuel (21), using a compression molding machine (20).
USE

For use in electric power generation.
ADVANTAGE
Reduces installation and processing expense. The fuel has a constant calorific value. Suppresses generation of unpleasant **smell** in reservoir.
FS CPI; GMPI
MC CPI: H09-F01

L60 ANSWER 12 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1998-434001 [37] WPIX Full-text
DNC C1998-131378 [37]
TI Regenerated plastic moulding - prepared by moulding a mixture of waste plastic and **waste organic** material.
DC A35; A92; H09
IN HORIE I; OKAMOTO K; YOSHIDA M
PA (OKAM-I) OKAMOTO K; (OKAE-C) OKAMOTO KAGAKU KK
CYC 1
PI JP 10182849 A 19980707 (199837)* JA 8[9]
<--
ADT JP 10182849 A **JP 1997-295646 19971028**
PRAI **JP 1996-291937 19961101**
IPCR B29B0017-00 [I,A]; B29B0017-00 [I,C]; B29B0017-04 [I,A]; B29B0017-04 [I,C]; B29C0041-02 [I,C]; B29C0041-20 [I,A]; B29K0101-00 [N,A]; B29K0105-26 [N,A]; B29L0009-00 [N,A]; C08J0011-00 [I,A]; C08J0011-00 [I,C]; C08J0005-00 [I,A]; C08J0005-00 [I,C]; C10L0005-40 [I,C]; C10L0005-48 [I,A]
AB JP 10182849 A UPAB: 20050522
A regenerated plastic molding comprises moulding unitedly a mixture consisting mainly of waste plastic and **waste organic** substance.
USE - The regenerated plastic molding is useful for e.g. vessel or flower pot and also can be used as fuel.
ADVANTAGE - Waste plastic and **waste organic** substance can be effectively reutilised by the invention. As the combustion calorie of the regenerated plastic molding can be controlled by changing the ratio of waste plastic and **waste organic** substance, the molding can be used as **solid** fuel or a liquid fuel by mixing it with waste oil. **Biodegradability** can be imparted to the regenerated plastic molding.
ABDT JP10182849
A regenerated plastic molding comprises moulding unitedly a mixture consisting mainly of waste plastic and **waste organic** substance.
USE
The regenerated plastic molding is useful for e.g. vessel or flower pot and also can be used as fuel.
ADVANTAGE
Waste plastic and **waste organic** substance can be effectively reutilised by the invention. As the combustion calorie of the regenerated plastic molding can be controlled by changing the ratio of waste plastic and **waste organic** substance, the molding can be used as **solid** fuel or a liquid fuel by mixing it with waste oil. **Biodegradability** can be imparted to the regenerated plastic molding.
EXAMPLE
A regenerated plastic molding was prepared by foaming and injection-molding a mixture of polyethylene terephthalate(used as PET bottle), coconut husk powder and gelatin of 4.5:4.5:1 in weight ratio at e.g. 160°C. The moulding had light cream colour smooth surface, good appearance and no bad **smell**, and was useful for pot, fish-breeding reef or box.
EMBODIMENT

Waste plastic is e.g. polystyrene, polypropylene or polyethylene, pref. polyethylene terephthalate. **Waste organic** substance is e.g. wheat bran, coconut husk, pulp dust, used paper or cow bone. Gel-form organic substance is e.g. gelatin or agar-agar. The form of the materials is pref. pellet, granule or powder. The mixing ratio of waste plastic to **waste organic** substance is 2:8-8:2, pref. 4:6-6:4.

PREFERRED CONDITION

Regenerated plastic molding is obtained by molding unitedly a mixture mainly consisting of **waste** plastic, **waste organic** substance and gel-form organic substance. On the surface of the molding, a mixed layer consisting mainly of waste plastic and **waste organic** substance is formed.

FS CPI

MC CPI: A11-B01; A11-C03; A11-C07; H09-F01

L60 ANSWER 13 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1997-011672 [01] WPIX Full-text

DNC C1997-003127 [01]

TI Combined treatment of domestic sewage and **biodegradable** waste - uses locally available natural energy, e.g. solar, and energy produced by the system; sewage and waste undergo tert. treatment

DC D15; D16

IN BRAUN U

PA (BRAU-I) BRAUN U

CYC 68

PI WO 9634841 A1 19961107 (199701)* EN 36[20]
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AU 9658126 A 19961121 (199711) EN
<--
EP 823887 A1 19980218 (199811) EN
<--
BR 9608306 A 19991130 (200014) PT
<--
MX 9708423 A1 19980801 (200014) ES
<--
EP 823887 B1 20020320 (200221) EN
<--
DE 69619975 E 20020425 (200235) DE
<--
MX 214331 B 20030520 (200418) ES

ADT WO 9634841 A1 **WO 1996-EP1831 19960502**; AU 9658126 A **AU 1996-58126 19960502**; BR 9608306 A **BR 1996-8306 19960502** ; DE 69619975 E **DE 1996-69619975 19960502**; EP 823887 A1 **EP 1996-919655 19960502**; EP 823887 B1 **EP 1996-919655 19960502**; DE 69619975 E **EP 1996-919655 19960502**; EP 823887 A1 **WO 1996-EP1831 19960502**; BR 9608306 A **WO 1996-EP1831 19960502**; EP 823887 B1 **WO 1996-EP1831 19960502**; DE 69619975 E **WO 1996-EP1831 19960502**; MX 214331 B **WO 1996-EP1831 19960502**; MX 9708423 A1 **MX 1997-8423 19971031**; MX 214331 B **MX 1997-8423 19971031**

FDT DE 69619975 E Based on EP 823887 A; AU 9658126 A Based on WO 9634841 A; EP 823887 A1 Based on WO 9634841 A; BR 9608306 A Based on WO 9634841 A; EP 823887 B1 Based on WO 9634841 A; DE 69619975 E Based on WO 9634841 A; MX 214331 B Based on WO 9634841 A

PRAI **EP 1995-111851 19950727**
LK 1995-10801 19950502
LK 1995-10830 19950614
WO 1996-EP1831 19960502

IC ICM C02F003-04; C05F017-00

IPCR C02F0003-04 [I,A]; C02F0003-04 [I,C]; C02F0003-28 [I,A]; C02F0003-28 [I,C]; C05F0017-00 [I,A]; C05F0017-00 [I,C]; C05F0007-00 [I,A]; C05F0007-00 [I,C]; C12M0001-107 [I,A]; C12M0001-107 [I,C]

AB WO 1996034841 A1 UPAB: 20050514

A combined treatment of sewage and/or waste **water**, sludges and shredded domestic **biodegradable** waste comprises, after physical pre-treatment, e.g. grease removal: (i) a first waste **water** and/or sewage liquid-**solid** separation; (ii) a prim. biological treatment; (iii) a second waste **water** liquid- **solid** separation; (iv) a sec. biological treatment; (v) anaerobic hydrological treatment of the sludges produced and the waste, after removal of wooden components and (vi) anaerobic methane fermenting treatment of the sludges and the waste. Also claimed is a device for carrying out the above method which provides changing sludge levels, due to the accumulation and release of the biogas in the anaerobic fermentation reactor, to transport the floating sludge to a blow-off device.

The device is pref. a fixed dome plant with a funnel as bottom to avoid the accumulation of **solids.** The device is pref. built around and/or under a liquid-**solid** separator but separated by a tank in between. The tank pref. functions as an hydrolysis and/or inlet device. The liquid-**solid** separator is pref. a Dortmund Tank. Prim. sewage sludge and sec. bacterial sludge are pref. sedimented in one Dortmund Tank, divided vertically by a wall. The prim. waste **water** treatment device is pref. on the separator. The device may be in the form of a closed tower with pref. only one air inlet. The device pref. has combined denitrification and phosphorous retention with an anaerobic fixed bed or soil filter made of Goethite, Hematite or other minerals iron-active surfaces. The device is pref. and area covered with a transparent cover with a slope upwards towards the direction of the intended airflow.

USE - The method is used for treating the **organic waste** of domestic settlements, both liquid and **solid.**

ADVANTAGE - The treatment of domestic sewage and anaerobic treatment of domestic **biodegradable** waste are combined in one device. There is maximised use of solar thermal energy and the gassing pressure energy of the biogas. There is low space requirement, and low construction and running costs. ABDT WO9634841

A combined treatment of sewage and/or waste **water**, sludges and shredded domestic **biodegradable** waste comprises, after physical pre-treatment, e.g. grease removal:
(i) a first waste **water** and/or sewage liquid-**solid** separation;
(ii) a prim. biological treatment;
(iii) a second waste **water** liquid-**solid** separation;
(iv) a sec. biological treatment;
(v) anaerobic hydrological treatment of the sludges produced and the waste, after removal of wooden components and
(vi) anaerobic methane fermenting treatment of the sludges and the waste.
Also claimed is a device for carrying out the above method which provides changing sludge levels, due to the accumulation and release of the biogas in the anaerobic fermentation reactor, to transport the floating sludge to a blow-off device.

USE

The method is used for treating the **organic waste** of domestic settlements, both liquid and **solid.**

ADVANTAGE

The treatment of domestic sewage and anaerobic treatment of domestic **biodegradable** waste are combined in one device. There is maximised use of solar thermal energy and the gassing pressure energy of the biogas. The space requirement, and construction and running costs are all low.

PREFERRED METHOD

The liquid-**solid** separation is pref. sedimentation. The prim.

biological treatment is pref. aerobic treatment. The sec. biological treatment is pref. anaerobic.
There is an optional liquid-**solid** separation between the anaerobic hydrolytical sludge treatment and the methane fermentation. There may be a **solid**-liquid separation treatment after the methane fermentation. There is pref. aerobic draining and/or drying of the fermented material obtd. from the methane fermentation. The dried fermented matter is then pref. composted with the removed wooden components.
A liquid flow is pref. provided, caused by the chimney effect, for enhancing the activity of the prim. waste **water** treatment and for minimising the development of offensive **odours**. The floating sludge blankets are move/removed in/from an anaerobic reactor by applying gas pressure exerted by the biogas produced by the sludges. The chimney effect is pref. enhanced by directing air warmed by the greenhouse effect generated in the draining/drying device into the liquid flow.
PREFERRED DEVICE
The device is pref. a fixed dome plant with a funnel as bottom to avoid the accumulation of **solids**. The device is pref. built around and/or under a liquid-**solid** separator but separated by a tank in between. The tank pref. functions as an hydrolysis and/or inlet device.
The liquid-**solid** separator is pref. a Dortmund Tank. Prim. sewage sludge and sec. bacterial sludge are pref. sedimented in one Dortmund Tank, divided vertically by a wall.
The prim. waste **water** treatment device is pref. on the separator in the form of a closed tower with pref. only one air inlet. The device pref. has combined denitrification and phosphorous retention with an anaerobic fixed bed or soil filter made of Goethite, Hematite or other minerals iron-active surfaces. It is covered with a transparent cover with a slope upwards towards the direction of the intended airflow and is connected to ≥1 foreign energy consuming device and utilises 0.05 to 0.5m2 per population equivalent.

FS CPI
MC CPI: D04-A01B; D04-A01J; D04-B10; D05-A04A

L60 ANSWER 14 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1996-335980 [34] WPIX Full-text
DNC C1996-106089 [34]
DNN N1996-283177 [34]
TI Digesting **solid** waste material from e.g. farms using mobile **solids** digestion vessel - collects waste from source and transports to site where active bacteria derived from organic material undergoing anaerobic bacterial digestion can be added
DC C04; D14; D15; D16; P43
IN REYNELL C P
PA (REYN-I) REYNELL C P
CYC 68
PI GB 2297280 A 19960731 (199634)* EN 17[2]
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WO 9623054 A1 19960801 (199636) EN 25[3]
<--
AU 9644938 A 19960814 (199650) EN
<--
EP 805849 A1 19971112 (199750) EN
<--
NZ 300252 A 19971124 (199802) EN
<--
AU 691391 B 19980514 (199831) EN

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US 5958756 A 19990928 (199947)# EN
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EP 805849 B1 20000405 (200021) EN
<--
DE 69607596 E 20000511 (200030) DE
<--
ES 2147362 T3 20000901 (200047) ES
<--

ADT GB 2297280 A **GB 1995-1637 19950127**; AU 9644938 A **AU 1996-44938 19960126**; AU 691391 B **AU 1996-44938 19960126** ; DE 69607596 E **DE 1996-69607596 19960126**; EP 805849 A1 **EP 1996-901067 19960126**; EP 805849 B1 **EP 1996-901067 19960126**; DE 69607596 E **EP 1996-901067 19960126**; ES 2147362 T3 **EP 1996-901067 19960126**; NZ 300252 A **NZ 1996-300252 19960126**; WO 9623054 A1 **WO 1996-GB184 19960126**; AU 9644938 A **WO 1996-GB184 19960126**; EP 805849 A1 **WO 1996-GB184 19960126**; NZ 300252 A **WO 1996-GB184 19960126**; EP 805849 B1 **WO 1996-GB184 19960126** ; DE 69607596 E **WO 1996-GB184 19960126**; US 5958756 A **WO 1996-GB184 19960126**; US 5958756 A **US 1997-875461 19970728**

FDT AU 691391 B Previous Publ AU 9644938 A; DE 69607596 E Based on EP 805849 A; ES 2147362 T3 Based on EP 805849 A; AU 9644938 A Based on WO 9623054 A; EP 805849 A1 Based on WO 9623054 A; NZ 300252 A Based on WO 9623054 A; AU 691391 B Based on WO 9623054 A; EP 805849 B1 Based on WO 9623054 A; DE 69607596 E Based on WO 9623054 A; US 5958756 A Based on WO 9623054 A

PRAI **GB 1995-1637 19950127**
US 1997-875461 19970728

IC ICM C12M001-107

IPCR C05F0015-00 [I,A]; C05F0015-00 [I,C]; C12M0001-107 [I,A]; C12M0001-107 [I,C]; C12P0005-00 [I,C]; C12P0005-02 [I,A]; C12S0013-00 [I,A]; C12S0013-00 [I,C]

AB GB 2297280 A UPAB: 20060111

Solid waste material containing **biodegradable solids** is collected in a **solids** digestion vessel at a first location and transported in the vessel to a second location where there is a source of organic material undergoing anaerobic bacterial digestion in a fluid phase digestion stage which produces a fluid fraction containing active bacteria. At least part of the fluid fraction from the fluid phase digestion stage is fed into the **solids** digestion vessel to provide at least part of a fluid phase in a **solids** digestion stage, at least part of the environmentally more acceptable **solids** fraction from the **solids** digestion stage being recovered. Also claimed is the mobile **solids** digestion vessel used in the process for digesting **solid** waste material, the vessel having ≥1 connection for fluids.

USE - The process and the vessel can be used for treating regularly produced **solid organic waste** from abattoirs, farms and food processing plants so that it may be discharged into the environment.

ADVANTAGE - Use of the process and vessel obviates the need for a skip or similar for transporting offensive, **smelly**, untreated waste, the waste being loaded directly into the vessel at source so as to reduce the amount of handling necessary and the vessel being sealed to prevent the escape of **odours**. The treated waste may be unloaded from the vessel at leisure and replaced with a new load.

ABDT GB2297280

Solid waste material containing **biodegradable solids** is collected in a **solids** digestion vessel at a first location and transported in the vessel to a second location where there is a source of organic material undergoing anaerobic bacterial digestion in a fluid phase digestion stage which produces a fluid fraction containing active bacteria.

At least part of the fluid fraction from the fluid phase digestion stage is fed into the **solids** digestion vessel to provide at least part of a fluid phase in a **solids** digestion stage, at least part of the environmentally more acceptable **solids** fraction from the **solids** digestion stage being recovered. Also claimed is the mobile **solids** digestion vessel used in the process for digesting **solid** waste material, the vessel having ≥1 connection for fluids.

USE

The process and the vessel can be used for treating regularly produced **solid organic waste** from abattoirs, farms and food processing plants so that it may be discharged into the environment.

ADVANTAGE

Use of the process and vessel obviates the need for a skip or similar for transporting offensive, **smelly**, untreated waste, the waste being loaded directly into the vessel at source so as to reduce the amount of handling necessary and the vessel being sealed to prevent the escape of **odours.**

The treated waste may be unloaded from the vessel at leisure and replaced with a new load.

PREFERRED APPARATUS

The mobile **solids** digestion vessel includes a **heater** for **heating** the waste.

PREFERRED PROCESS

The **solids** digestion vessel is transported away from the second location back to the first location and returned to the producer. The waste is subjected to an additional stage of aerobic digestion.

The digestion process is carried out at 20-80 (pref. 40-65) °C and it is **heated** while being transported to the second location.

A number of **solids** digestion vessels are connected to a single liquid digester. All the fluid connections between the **solids** digestion vessel and the fluid phase digestion source are carried by a single connector. (LV)

FS CPI; GMPI

MC CPI: C04-D03; C11-A01; D03-J; D04-A01J; D05-A04A

L60 ANSWER 15 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1995-036169 [05] WPIX Full-text

DNC C1995-016192 [05]

TI Co-composting appts. for treating **solid** waste and sewage sludge - has vessel(s) for mixing ingredients, **temperature** control and maintaining mixture in contact with gases and **water**

DC C04; D15; D16

IN ARRAU A H; KRANIS R

PA (ARRA-I) ARRAU A H; (BIOW-N) BIO-WASTE TECHNOLOGIES INT LTD; (KRAN-I) KRANIS R

CYC 53

PI WO 9429014 A1 19941222 (199505)* EN 44[8]
<--
BR 9303619 A 19950110 (199509) PT
<--
AU 9471087 A 19950103 (199521) EN
<--
EP 703824 A1 19960403 (199618) EN [1]
<--
US 5534437 A 19960709 (199633) EN 15[8]
<--

BR 9406816 A 19960723 (199635) PT
<--
EP 703824 A4 19971119 (199840) EN
<--

ADT WO 9429014 A1 **WO 1994-US6749 19940614**; US 5534437 A Cont of **US 1993-77238 19930614**; BR 9303619 A **BR 1993-3619 19930830**; US 5534437 A Cont of **US 1994-251515 19940606**; AU 9471087 A **AU 1994-71087 19940614**; BR 9406816 A **BR 1994-6816 19940614**; EP 703824 A1 **EP 1994-920213 19940614** ; EP 703824 A4 **EP 1994-920213 19940614**; EP 703824 A1 **WO 1994-US6749 19940614**; BR 9406816 A **WO 1994-US6749 19940614**; US 5534437 A **US 1995-409542 19950324**

FDT AU 9471087 A Based on WO 9429014 A; EP 703824 A1 Based on WO 9429014 A; BR 9406816 A Based on WO 9429014 A

PRAI **US 1994-251515 19940606**
US 1993-77238 19930614
US 1995-409542 19950324

IPCR C05F0015-00 [I,A]; C05F0015-00 [I,C]; C05F0017-00 [I,A]; C05F0017-00 [I,C]; C05F0017-02 [I,A]; C05F0017-02 [I,C]; C05F0009-00 [I,A]; C05F0009-00 [I,C]

AB WO 1994029014 A1 UPAB: 20050701

Solid organic waste and sludge are admitted through an opening into a vessel where they are mixed together. The vessel also has a gas input, **temperature** control, a gas outlet and an outlet for a **biodegradable** prod. First growth conditions are imposed on the mixture These are a **temperature** of 165-200°F, a gaseous **water** concentration of 25-40% and an oxygen gas concentration which promotes the growth of thermophilic microorganisms to produce a thermophilic **biodegradation** prod. Should the prod. contain insufficient mesophilic microorganisms, a second mixture is formed of a mesophilic microorganism and the thermophilic **biodegradation** prod. Second growth conditions are imposed on this mixture These are a **temperature** of 145-164°F, a gaseous **water** concentration of 25-45% and an oxygen gas concentration sufficient to promote the growth of one or more mesophilic microorganisms to form a mesophilic **biodegradation** prod.

USE - **Solid organic waste** materials, e.g. agricultural, industrial or municipal **organic solid waste** are co-processed with sludge derived from agricultural, industrial or municipal sources. The resulting prod. is suitable for application to soil.

ADVANTAGE - The process is completed in a continuous 3-5 day period in a single vessel. The use of a single vessel eliminates rodents, flies and **odours.**

ABDT WO9429014

Solid organic waste and sludge are admitted through an opening into a vessel where they are mixed together. The vessel also has a gas input, **temperature** control, a gas outlet and an outlet for a **biodegradable** prod.
First growth conditions are imposed on the mixture These are a **temperature** of 165-200°F, a gaseous **water** concentration of 25-40% and an oxygen gas concentration which promotes the growth of thermophilic microorganisms to produce a thermophilic **biodegradation** prod.
Should the prod. contain insufficient mesophilic microorganisms, a second mixture is formed of a mesophilic microorganism and the thermophilic **biodegradation** prod. Second growth conditions are imposed on this mixture These are a **temperature** of 145-164°F, a gaseous **water** concentration of 25-45% and an oxygen gas concentration sufficient to promote the growth of one or more mesophilic microorganisms to form a mesophilic **biodegradation** prod.
USE
Solid organic waste materials, e.g.

agricultural, industrial or municipal **organic solid waste** are co-processed with sludge derived from agricultural, industrial or municipal sources. The resulting prod. is suitable for application to soil.

ADVANTAGE

The process is completed in a continuous 3-5 day period in a single vessel. The use of a single vessel eliminates rodents, flies and **odours.**

PREFERRED PROCESS

In the event of the mesophilic **biodegradation** prod. containing insufficient microorganisms from a third gp., the prod. is mixed with a supply of this third gp. comprising actinomycetes. Third growth conditions are imposed on the prod. These are a **temperature** of 110-144°F, gaseous **water** concentration of 25-45% and sufficient oxygen gas concentration to promote the growth of the actinomycetes. The resulting **biodegradation** forms an organic compost suitable for agricultural applications.

The **temperature**, and **water** and oxygen concns. are maintained by the flow of gases through the vessel.

A scrubber at the gas outlet removes noxious gases during a period in which thermophilic growth conditions are imposed. Pref. the vessel is rotated. It includes adjustable baffles with planar surfaces for imparting direction and movement to the vessel contents. (KKG)

FS CPI

MC CPI: C04-A08; C04-A10; C04-B04B; C04-B04L; C04-B04M; C04-D02; D04-A01J; D04-A01K; D05-A04A

L60 ANSWER 16 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1983-779786 [40] WPIX Full-text

DNC C1983-095685 [21]

TI **Organic waste** treatment by acid fermentation - **heat** treatment then methane fermentation, generation of **odours** is suppressed

DC D15

IN ENDO K; KIRIYAMA K; MATSUO Y

PA (EBAI-C) EBARA INFILCO KK

CYC 1

PI JP 58143894 A 19830826 (198340)* JA 5[1]
<--
JP 02000999 B 19900110 (199005) JA
<--

ADT JP 58143894 A **JP 1982-27162 19820222**; JP 02000999 B **JP 1982-27162 19820222**

PRAI **JP 1982-27162 19820222**

IPCR C02F0011-04 [I,A]; C02F0011-04 [I,C]

AB JP 58143894 A UPAB: 20050422

Organic wastes e.g. municipal dust, industrial wastes and sludge resulting in the treatment of sewage and waste **water** etc. is subjected to acid fermentation treatment, **heat**-treated at pH less than 5, and then subjected to methane fermentation treatment.

Biodegradation of **organic wastes** is accelerated and amount of CH4 to be generated is increased. Methane fermentation residue exhibits easy **solid** liquid separatability. Generation of **odorous** gas is suppressed and separated liquor is discoloured. The **heat** treatment is pref. carried-out at higher than 175 deg.C to improve the dewatering filtration rate and the methane fermentation efficiency.

FS CPI

MC CPI: D04-B11; D05-A04

L60 ANSWER 17 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1980-34424C [19] WPIX Full-text
TI Converting **organic waste** to animal feed - in electrochemical cell, with collection of hydrogen to supply cell energy requirements
DC C03; D13; D15; J03; X25
IN DAY D L; STEINBERG M P
PA (DAYD-I) DAY D L
CYC 1
PI US 4200505 A 19800429 (198019)* EN
<--
ADT US 4200505 A **US 1979-26666 19790403**
IPCR A23K0001-10 [I,A]; A23K0001-10 [I,C]; C02F0001-46 [I,A]; C02F0001-46 [I,C]; C02F0003-12 [I,A]; C02F0003-12 [I,C]; C02F0003-20 [I,A]; C02F0003-20 [I,C]
AB US 4200505 A UPAB: 20050418
Conversion of **organic waste** comprises passing an aqueous **biodegradable** organic compsn. containing aerobic bacteria and having total **solids** content ≥0.3 weight% and BOD ≥1g/l, to an electrolytic cell. Here bubbles of H2 are generated at the cathode by a d.c. current but the anode is kept free of O2 bubbles. Treatment and growth of bacteria are continued until the mass is free of **odour** of the starting material, then recovered as bacteria-rich effluent. At least some of the H2 generated is recovered to provide some of the electrical needs of the cell (especially by conversion in a fuel cell). The feed is pref. animal wastes and effluent is recovered continuously as overflow. Prod. is used as an animal feed supplement. The process requires less power than known waste-to-protein conversion methods and simultaneously overcomes **odour** and disposal problems.
FS CPI; EPI
MC CPI: C04-B02B; C04-B04B; C12-L09; D03-G02; D03-G03; D04-B11; J03-B
EPI: X25-N

L60 ANSWER 18 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1979-20017B [11] WPIX Full-text
TI Purifying **odorous** waste gases, especially from **water** treatment - using aqueous suspension of biological **solids** and active carbon
DC D15; D22; J01; P34
IN BURANT W; COPA W M
PA (STER-C) STERLING DRUG INC
CYC 9
PI BE 870281 A 19790307 (197911)* FR
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GB 2004198 A 19790328 (197913) EN
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DE 2839173 A 19790329 (197914) DE
<--
NL 7809138 A 19790319 (197914) NL
<--
JP 54053670 A 19790427 (197923) JA
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FR 2403102 A 19790518 (197925) FR
<--
ZA 7804907 A 19790709 (197938)# EN
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CA 1104795 A 19810714 (198137) EN
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CH 625132 A 19810915 (198142) DE
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DE 2839173 C 19901115 (199046) DE
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NL 190269 B 19930802 (199333) NL 5[0]
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ADT ZA 7804907 A **ZA 1978-4907 19780829**; NL 190269 B **NL 1978-9138 19780907**
PRAI **US 1977-833465 19770915**
IC IC B01D053-02; B01D053-10; B01D053-14
IPCR B01D [I,S]; B01D0047-00 [I,A]; B01D0047-00 [I,C]; B01D0053-38 [I,A]; B01D0053-38 [I,C]; B01D0053-77 [I,A]; B01D0053-77 [I,C]; B01D0053-84 [I,A]; B01D0053-84 [I,C]; C01B [I,S]; C02F0003-12 [I,A]; C02F0003-12 [I,C]
AB BE 870281 A UPAB: 20050628
Process for eliminating a substantial proportion of organic and/or mineral volatile substances from an **odorous** gas current comprises passing it into ≥1 purifier comprising an aqueous suspension of biological **solid** materials and active carbons at concns of 50-20,000 mg/l for each component. The pref. concns. are 1000-5000mg/l and 5000-16,000 mg/l respectively. The process is especially applied to **waste** gases containing **organic** oxygen cpds. hydrogen sulphide and/or mercaptans, ammonia and/or amines.
The process is applied to industrial waste gases. The use of the activated sludge and the active carbon together gives a synergistic effect.
FS CPI; GMPI
MC CPI: D09-A02; J01-E02B

=> d 19-29 ibib ed abs hitind

L60 ANSWER 19 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1177555 HCAPLUS Full-text
TITLE: Garbage processing machine [Machine Translation].
INVENTOR(S): Nakao, Hiroshi; Tsuzuki, Shinichi; Morishige; Koda, Atsushi; Yoshikawa, Tatsuo; Tomita, Hideo; Hatano, Takeshi
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005305348	A	20051104	JP 2004-127817	20040423
PRIORITY APPLN. INFO.:			JP 2004-127817	20040423

ED Entered STN: 06 Nov 2005
AB [Machine Translation of Descriptors]. While holding down the occurrence of **smell**, it offers the garbage processing machine which can activate the microbe quickly. It possesses the humidity regulation expedient which adjusts the humidity inside aforementioned processing tank 1a the **organic matter** the humidity sensor according to the output from of 11 which inspects the humidity inside processing tank 1a and aforementioned processing tank 1a which receive decompose **microbial** carrier 1b and the aforementioned humidity sensor 11 (not to illustrate), from start of use of garbage processing machine itself 1 in order to keep the humidity inside aforementioned processing tank 1a in the usual compared to raising, the aforementioned humidity regulation expedient is controlled, " it starts specified period and, being something which does driving ", while activity of the operational early microbe is little, heating the temperature inside processing tank 1a In order to keep humidity in

raising without thing, because it controls, while holding down the occurrence of **smell**, it is something which can activate the microbe quickly.

IC ICM **B09B003-00**

L60 ANSWER 20 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:54181 HCAPLUS Full-text
DOCUMENT NUMBER: 142:92343
TITLE: Continuous manufacture of hydrogen with Enterobacter from **organic wastes**
INVENTOR(S): Noike, Tatsuya; Yokoyama, Masashi; Kono, Takashi
PATENT ASSIGNEE(S): Takuma Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005013045	A	20050120	JP 2003-179864	20030624
PRIORITY APPLN. INFO.:			JP 2003-179864	20030624

ED Entered STN: 20 Jan 2005

AB **Organic wastes** such as okara are used for continuous fermentation of hydrogen and methane with Enterobacter in a medium where the soluble **carbohydrate** and protein is controlled at ≥3000 mg/l, and where ammonia-N is supplied. The continuous fermentation apparatus also contains methane-forming tank(s) for manufacture of methane and ammonia which can be recycled into the hydrogen fermentation tank. The method also gives organic acids such as butyric acid.

IC ICM C12P003-00
ICS **B09B003-00**; C02F003-28; C02F003-34; C12M001-107; C12R001-01
CC 16-5 (Fermentation and Bioindustrial Chemistry)
Section cross-reference(s): 52
ST hydrogen continuous manuf app **carbohydrate** protein concn
IT Culture media
Enterobacter
Enterobacter aerogenes
Enterobacter cloacae
Enterobacter sakazakii
Fermentation apparatus
Nitrogen sources, **microbial**
Wastes
(continuous manufacture of hydrogen with Enterobacter from **org**. **wastes** as fossil fuel substitute)
IT Fermentation
(continuous; continuous manufacture of hydrogen with Enterobacter from **organic wastes** as fossil fuel substitute)
IT Fuels
(fossil, substitute; continuous manufacture of hydrogen with Enterobacter from **organic wastes** as fossil fuel substitute)
IT Glycine max
(okara; continuous manufacture of hydrogen with Enterobacter from **organic wastes** as fossil fuel substitute)
IT Acids, preparation
(organic; continuous manufacture of hydrogen with Enterobacter from **organic wastes** as fossil fuel substitute)
IT **Carbohydrates**, biological studies

Proteins
(soluble; continuous manufacture of hydrogen with Enterobacter from **organic wastes** as fossil fuel substitute)

IT 64-18-6P, Formic acid, preparation 64-19-7P, Acetic acid, preparation 74-82-8P, Methane, preparation 79-09-4P, Propionic acid, preparation 107-92-6P, Butyric acid, preparation 1333-74-0P, Hydrogen, preparation
(continuous manufacture of hydrogen with Enterobacter from **org . wastes** as fossil fuel substitute)

IT 7664-41-7, Ammonia, biological studies
(continuous manufacture of hydrogen with Enterobacter from **org . wastes** as fossil fuel substitute)

L60 ANSWER 21 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:699100 HCAPLUS Full-text
DOCUMENT NUMBER: 145:123806
TITLE: Method for making magnetized compost
INVENTOR(S): Suh, Hee Dong
PATENT ASSIGNEE(S): S. Korea
SOURCE: Repub. Korean Kongkae Taeho Kongbo, No pp. given
CODEN: KRXXA7
DOCUMENT TYPE: Patent
LANGUAGE: Korean
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
KR 2004035539	A	20040429	KR 2002-64728	20021022
PRIORITY APPLN. INFO.:			KR 2002-64728	20021022

ED Entered STN: 19 Jul 2006

AB Provided is an economical method for making high-quality magnetized compost applicable to agricultural and horticultural crops, which reutilizes various **organic wastes** as resources. The method comprises the steps of: removing foreign materials, salts and water from **organic waste**; introducing the **org . waste** in a mixer; adding at least one mineral powder thereto, in such an amount that the total mineral content after fermentation and aging becomes 45 wt% or less; adding magnetite (Fe3O4) in such an amount that its content after fermentation and aging becomes 5-30 wt%; introducing at least one bulking agent for carrying out fermentation smoothly to the moisture content of 60 wt%, and agitating and mixing them; fermenting and aging for 30 days or more; separating and removing foreign materials to obtain an aged compost; introducing the aged compost into a mixer; adding a **biodegradable** resin as a **binder**, and agitating and mixing them; forming pellets from the compost; drying the pelletized compost to have the moisture content of 20-35 wt%; and magnetizing the dried and pelletized compost with 500 G or more at which point coercive force is effective.

IC ICM C05F015-00
CC 19-6 (Fertilizers, Soils, and Plant Nutrition)

L60 ANSWER 22 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:781808 HCAPLUS Full-text
DOCUMENT NUMBER: 141:300537
TITLE: Anaerobic digestion of **organic waste** by methane fermentation with cellulolytic enzyme expressing bacteria
INVENTOR(S): Omiya, Kunio; Sakka, Kazuo; Kimura, Tetsuya; Morimoto, Kenji
PATENT ASSIGNEE(S): Japan Science and Technology Agency, Japan; Mie

University
SOURCE: Jpn. Kokai Tokkyo Koho, 39 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004261144	A	20040924	JP 2003-56934	20030304

PRIORITY APPLN. INFO.: JP 2003-56934 20030304

ED Entered STN: 24 Sep 2004

AB A method for anaerobic digestion of **organic waste** by methane fermentation, utilizing microorganism transformed with cellulolytic enzyme gene ligated to the promoter region of a gene not subject to catabolite repression, is disclosed. Cellulase B gene or cellulase D gene of Clostridium josui, or Ruminococcus albus endoglucanase I gene, can be used. **Organic waste** is first subject to hydrogen fermentation under anaerobic condition, then to methane fermentation Clostridium paraputrificum M was transformed with Clostridium josui cellulase B, cellulase D, or Ruminococcus albus endoglucanase I gene to operably linked them to its hydrogenase gene promoter. Transformed C. paraputrificum was effective in decomposing raw garbage.

IC ICM C12N015-09
ICS **B09B003-00**; C02F011-04; C12N001-20; C12N001-21; C12R001-145
CC 60-1 (Waste Treatment and Disposal)
Section cross-reference(s): 3, 10
ST anaerobic digestion **org waste** cellulolytic enzyme; **org waste** anaerobic bacteria methane fermn
IT Municipal refuse
Solid wastes
Wastes
(anaerobic digestion of **organic waste** by methane fermentation with cellulolytic enzyme expressing bacteria)
IT Solid wastes
(cellulosic; anaerobic digestion of **organic waste** by methane fermentation with cellulolytic enzyme expressing bacteria)
IT **Carbohydrates**, processes
(demonstration plant for thermophilic anaerobic dry digestion of organic fraction of municipal refuse, Kyoto, Japan)
IT Wastes
(domestic; anaerobic digestion of **organic waste** by methane fermentation with cellulolytic enzyme expressing bacteria)
IT Catabolite repression, **microbial**
(promoter region of a gene not subject to, cellulolytic enzyme gene ligated to; demonstration plant for thermophilic anaerobic dry digestion of organic fraction of municipal refuse, Kyoto, Japan)
IT 761136-04-3 761136-05-4 761136-06-5 761136-07-6 761136-08-7 761136-09-8 761136-10-1 761136-11-2 761136-12-3 761136-13-4 761136-14-5 761136-15-6
(unclaimed nucleotide sequence; anaerobic digestion of **org . waste** by methane fermentation with cellulolytic enzyme expressing bacteria)
IT 761136-16-7 761136-17-8 761136-18-9 761136-19-0
(unclaimed protein sequence; anaerobic digestion of **organic waste** by methane fermentation with cellulolytic enzyme expressing bacteria)

L60 ANSWER 23 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:319794 HCAPLUS Full-text
DOCUMENT NUMBER: 138:308690
TITLE: Process for ozonating and converting organic materials into useful products
INVENTOR(S): Greene, Annel K.
PATENT ASSIGNEE(S): Clemson University, USA
SOURCE: PCT Int. Appl., 30 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003033181	A1	20030424	WO 2002-US33260	20021018
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003077770	A1	20030424	US 2001-983012	20011018
US 6835560	B2	20041228		
AU 2002335847	A1	20030428	AU 2002-335847	20021018
EP 1444058	A1	20040811	EP 2002-770612	20021018
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
PRIORITY APPLN. INFO.:			US 2001-983012 A	20011018
			WO 2002-US33260 W	20021018

ED Entered STN: 25 Apr 2003
AB A process for converting **organic waste** materials into usable products and products thereof is disclosed. According to the process, **organic waste** materials are contacted with ozone thereby converting said waste material to a substrate or medium. The **organic waste** materials may include lignocellulosic materials, proteinaceous materials, **carbohydrate** materials, chitin waste materials, household garbage, restaurant waste, agricultural and forestry waste, petroleum or chemical manufacturing waste, or **wastewater**; any **org** .- bearing compound that can be oxidized may be used as a starting material. The substrate is a product of the process and it may be further contacted with organisms for bioconversion to further products. The organisms can include bacteria, yeast, fungi, plant cells, animal cells and genetically engineered organisms which are selected for their ability to bioconvert the substrate and produce a selected product.
IC ICM **B09B003-00**
ICS C12N001-00; C12N001-14; C12N001-16; C12N001-18; C12N001-20; C12P001-00; C12P001-02; C12P001-06; C12P007-00; C12P007-02; C12P007-06; C12P007-08; C12P007-14
CC 60-4 (Waste Treatment and Disposal)
Section cross-reference(s): 10, 52
ST **org waste wastewater** ozonization fermn ethanol methanation methane; ozonization **org waste wastewater** bioconversion bioproduct

IT **Wastes**
(**organic**; process for ozonating and biol. converting organic materials into useful products)
IT Methanogenic bacteria
Municipal refuse
Photosynthesis, biological
Pigments, nonbiological
Respiration, **microbial**
Saccharomyces cerevisiae
Scrap tires
Zymomonas mobilis
(process for ozonating and biol. converting organic materials into useful products)
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L60 ANSWER 24 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:160534 HCAPLUS Full-text
DOCUMENT NUMBER: 138:186468
TITLE: Manufacture of useful substances from sugar- and protein-containing garbage by **microbial** reaction
INVENTOR(S): Shimota, Toshimatsu; Shimota, Hiromitsu
PATENT ASSIGNEE(S): Kuraudo K. K., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003061695	A	20030304	JP 2001-254495	20010824
PRIORITY APPLN. INFO.:			JP 2001-254495	20010824

ED Entered STN: 04 Mar 2003
AB Useful substances, e.g. lactic acid and EtOH, are manufactured by crushing **organic matter** such as garbage containing sugars and proteins, separating the crushed product into solid and liquid to remove fibers and other solid matter, recovering aqueous suspension containing the sugars, and culturing useful substance-producing bacteria in the suspension as a culture media. For example, lactic acid (I) and EtOH were manufactured by neutralizing reaction solution obtained by culturing heterofermentative lactic acid bacteria, removing the bacterial cells upon flocculation, distilling the remaining liquid to recover EtOH, treating the residue with strong anion exchange resin to adsorb HCl and with weak anion exchange resin to adsorb I, regenerating the strong anion exchange resin with NaOH for converting I to Na lactate, passing the concentrated Na lactate through cation exchange resin, and heating the eluate containing I to evaporate H2O to recover I . The fibers and other solid matter may be hydrolyzed or biodegraded into monosaccharides and oligosaccharides for use in culture media.
IC ICM C12P007-06
ICS B01D015-04; **B09B003-00**; C12P007-56; C12P007-06; C12R001-01
CC 16-5 (Fermentation and Bioindustrial Chemistry)
Section cross-reference(s): 60
ST garbage **carbohydrate** protein contg solid liq sepn culture media; ethanol lactate manuf garbage derived culture media lactic

bacteria; heterolactic fermn **carbohydrate** protein contg garbage derived culture media

IT Monosaccharides

Oligosaccharides, preparation

(fibers and other solid matter degradation into; manufacture of useful substances such as lactic acid and EtOH by culturing bacteria in culture media prepared by crushing **carbohydrate**- and protein-containing garbage and removing solid matter)

IT Wastes

(food-processing; manufacture of useful substances such as lactic acid and EtOH by culturing bacteria in culture media prepared by crushing **carbohydrate**- and protein-containing garbage and removing solid matter)

IT Lactic acid bacteria

(heterofermentative; manufacture of useful substances such as lactic acid and EtOH by culturing bacteria in culture media prepared by crushing **carbohydrate**- and protein-containing garbage and removing solid matter)

IT Ion exchangers

(ionic useful substance concentration by; manufacture of useful substances such as lactic acid and EtOH by culturing bacteria in culture media prepared by crushing **carbohydrate**- and protein-containing garbage and removing solid matter)

IT Fermentation

(lactic acid; manufacture of useful substances such as lactic acid and EtOH by culturing bacteria in culture media prepared by crushing **carbohydrate**- and protein-containing garbage and removing solid matter)

IT Fermentation

Municipal refuse

(manufacture of useful substances such as lactic acid and EtOH by culturing bacteria in culture media prepared by crushing **carbohydrate**- and protein-containing garbage and removing solid matter)

IT **Carbohydrates**, processes

Proteins

(manufacture of useful substances such as lactic acid and EtOH by culturing bacteria in culture media prepared by crushing **carbohydrate**- and protein-containing garbage and removing solid matter)

IT Flocculants

(removal of bacterial cells using; manufacture of useful substances such as lactic acid and EtOH by culturing bacteria in culture media prepared by crushing **carbohydrate**- and protein-containing garbage and removing solid matter)

IT Anion exchangers

(strongly basic, heterolactic acid recovery using; manufacture of useful substances such as lactic acid and EtOH by culturing bacteria in culture media prepared by crushing **carbohydrate**- and protein-containing garbage and removing solid matter)

IT Anion exchangers

(weakly basic, heterolactic acid recovery using; manufacture of useful substances such as lactic acid and EtOH by culturing bacteria in culture media prepared by crushing **carbohydrate**- and protein-containing garbage and removing solid matter)

IT 50-21-5P, Lactic acid, preparation 64-17-5P, Ethanol, preparation

(manufacture of useful substances such as lactic acid and EtOH by culturing bacteria in culture media prepared by crushing **carbohydrate**- and protein-containing garbage and removing solid

matter)
IT 72-17-3P, Sodium lactate
(manufacture of useful substances such as lactic acid and EtOH by culturing bacteria in culture media prepared by crushing **carbohydrate**- and protein-containing garbage and removing solid matter)

L60 ANSWER 25 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:220702 HCAPLUS Full-text
DOCUMENT NUMBER: 136:248788
TITLE: Molding of biodegradable products such as flowerpots using starch, pulverized plant fibers, or raw **garbage**-based **organic** fertilizers
INVENTOR(S): Sato, Seiko; Su, Jianxin; Hou, Jinan
PATENT ASSIGNEE(S): Japan
SOURCE: PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002022730	A1	20020321	WO 2000-JP6279	20000913
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 2000073123	A5	20020326	AU 2000-73123	20000913
PRIORITY APPLN. INFO.:			WO 2000-JP6279 A	20000913

ED Entered STN: 22 Mar 2002
AB ≥1 Selected from starch, pulverized plant fibers, and organic fertilizers made from raw garbage is mixed with wheat flour and binders, added with water, and kneaded to give a composition for molding of biodegradable products such as flowerpots.
IC ICM C08L003-00
ICS C08L097-02; B09B003-00; A01G009-02
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 19, 43, 60
IT Alcohols, uses
Corn oil
(as **binder** for molding **biodegradable** product)
IT Tea products
(leaves, oolong, residues; mixed with **binder** for molding **biodegradable** product)
IT Bran
(mixed with **binder** for molding **biodegradable** product)
IT Plant fibers
(mixed with **binder** for molding **biodegradable** product)
IT Fertilizers

(**organic**, from raw **garbage**; mixed with **binder** for molding of **biodegradable** product)
IT Food processing
(solid **wastes**; for manufacturing **organic** fertilizer for molding biodegradable product)
IT Glycine max
(soybean products, residues; mixed with **binder** for molding **biodegradable** product)
IT 9005-25-8, Starch, uses
(mixed with **binder** for molding **biodegradable** product)
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L60 ANSWER 26 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:552639 HCAPLUS Full-text
DOCUMENT NUMBER: 135:126642
TITLE: Porous agglomerates for planting, water purification, etc., and their manufacture
INVENTOR(S): Tokashiki, Yoshihiro
PATENT ASSIGNEE(S): Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001204245	A	20010731	JP 2000-20084	20000128
PRIORITY APPLN. INFO.:			JP 2000-20084	20000128

ED Entered STN: 31 Jul 2001
AB Inorg. grains having different particle sizes, e.g. gravels, clays, are tangled with organic substances, e.g. plant fibers, and bonded with a binder to give the title porous agglomerates. Wastes such as coal ash, excavated soil, wastepaper, mown grass, etc. may be used in preparation of the materials. The agglomerates are prepared by mixing of the inorg. and organic components in a granulation apparatus, addition of **biodegradable binders** to the mixture, addition of (warm) water, and drying of the obtained granules having certain sizes.
IC ICM A01G001-00
ICS B01D039-02; B09B003-00; C02F001-28; C09K017-40; C09K101-00
CC 60-3 (Waste Treatment and Disposal)
Section cross-reference(s): 19, 61
IT Porous materials
(agglomerates; manufacture of porous materials suitable for planting and water treatment from **organic** and inorg. **wastes**)
IT Wastewater treatment sludge
(cakes; manufacture of porous materials suitable for planting and water treatment from **organic** and inorg. **wastes**)
IT Wood
(chips; manufacture of porous materials suitable for planting and water treatment from **organic** and inorg. **wastes**)
IT Ashes (residues)
(coal; manufacture of porous materials suitable for planting and water treatment from **organic** and inorg. **wastes**)
IT Solid wastes

(construction; manufacture of porous materials suitable for planting and water treatment from **organic** and inorg. **wastes**)

IT Straw
(cut; manufacture of porous materials suitable for planting and water treatment from **organic** and inorg. **wastes**)

IT Soils
(excavation; manufacture of porous materials suitable for planting and water treatment from **organic** and inorg. **wastes**)

IT Bagasse
Gravel
Soil substitutes
Solid wastes
Wastewater treatment
Water purification
(manufacture of porous materials suitable for planting and water treatment from **organic** and inorg. **wastes**)

IT Clays, uses
Plant fibers
(manufacture of porous materials suitable for planting and water treatment from **organic** and inorg. **wastes**)

IT Grass (Poaceae)
(mown; manufacture of porous materials suitable for planting and water treatment from **organic** and inorg. **wastes**)

IT Agglomerates (clustered mass)
(porous; manufacture of porous materials suitable for planting and water treatment from **organic** and inorg. **wastes**)

IT Construction materials
(solid waste; manufacture of porous materials suitable for planting and water treatment from **organic** and inorg. **wastes**)

IT Paper
(wastepaper; manufacture of porous materials suitable for planting and water treatment from **organic** and inorg. **wastes**)

L60 ANSWER 27 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:361249 HCAPLUS Full-text
DOCUMENT NUMBER: 127:23172
TITLE: Materials containing coal ash for treatment of **organic wastes** and the treatment process
INVENTOR(S): Fujii, Satoru; Tanosaki, Takao; Nozaki, Kenji; Murakami, Yutaka; Niino, Kiyonori
PATENT ASSIGNEE(S): Onoda Cement Co., Ltd., Japan; Nippon Gijutsu Kaihatsu Kenkyusho Y. K.
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09099279	A	19970415	JP 1995-282622	19951004
PRIORITY APPLN. INFO.:			JP 1995-282622	19951004

ED Entered STN: 09 Jun 1997
AB The materials mainly comprising coal ash with hydraulic modulus 0.02-0.20 and Blaine sp. surface area ≥2400 cm2/g are used for fermentation treatment of **organic wastes** with microorganisms. The process comprises fermentation of **organic wastes** by keeping them under weakly alkaline conditions by adding the

coal ash at 3 weight parts to 100 weight parts of the **organic wastewater.** The process prevents rotting and bad **smell** of **garbages** or **organic** sludges during their **microbial** treatment and provides reuse of the wastes as fertilizers.

IC ICM **B09B003-00**
ICS C02F011-02; C05F007-00; C05F009-00; C05F017-00

CC 60-4 (Waste Treatment and Disposal)
Section cross-reference(s): 19

ST **org waste** fermn microorganism coal ash; sludge fermn microorganism coal ash

IT Nut (seed)
(carbon source; coal ash for prevention of rotting and bad **smell** during fermentation treatment of **organic wastes**)

IT Carbon sources, **microbial**
Compost
Deodorization
Lactic acid bacteria
Manure
Municipal refuse
Photosynthetic bacteria
Sawdust
Sludges
Solid wastes
Wastewater treatment sludge
Yeast
(coal ash for prevention of rotting and bad **smell** during fermentation treatment of **organic wastes**)

IT Ashes (residues)
(coal; coal ash for prevention of rotting and bad **smell** during fermentation treatment of **organic wastes**)

IT Wood
Wood
(flour, carbon source; coal ash for prevention of rotting and bad **smell** during fermentation treatment of **organic wastes**)

IT Seed
(hull, carbon source; coal ash for prevention of rotting and bad **smell** during fermentation treatment of **organic wastes**)

IT Rice (Oryza sativa)
(husk; coal ash for prevention of rotting and bad **smell** during fermentation treatment of **organic wastes**)

IT Chaff
(rice husk; coal ash for prevention of rotting and bad **smell** during fermentation treatment of **organic wastes**)

IT 74-93-1, Methyl mercaptan, processes 75-50-3, Trimethylamine, processes 7664-41-7, Ammonia, processes 7783-06-4, Hydrogen sulfide, processes
(coal ash for prevention of rotting and bad **smell** during fermentation treatment of **organic wastes**)

L60 ANSWER 28 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1993:561950 HCAPLUS Full-text
DOCUMENT NUMBER: 119:161950
TITLE: Preparation of starch- and/or protein-containing packaging or insulating materials as substitutes for cellular polystyrene or polyurethane materials
INVENTOR(S): Schaaf, Heinz Josef
PATENT ASSIGNEE(S): Schaaf Technologie GmbH, Germany

SOURCE: Ger. Offen., 4 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 4126756	A1	19930218	DE 1991-4126756	19910813
PRIORITY APPLN. INFO.:			DE 1991-4126756	19910813

ED Entered STN: 16 Oct 1993
AB In the preparation of the title materials, a composition containing starch and/or proteins as well as **organic wastes** and additives for improving the elasticity and/or sorption properties is extruded and expanded, and the extruded articles are coated with fibrous **organic wastes** and **biodegradable binders.**
IC ICM B29B011-10
ICS B29C067-20; B29C069-00; B29C041-08; B65D065-42; B65D081-12
ICI B29K025-00
CC 38-3 (Plastics Fabrication and Uses)

L60 ANSWER 29 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1988:97071 HCAPLUS Full-text
DOCUMENT NUMBER: 108:97071
TITLE: Solid-liquid separation by membrane with biodegradable porous layer
INVENTOR(S): Nakamura, Kanji; Taniguchi, Yoshio; Miyaji, Arimasa; Kitagawa, Mikio; Furuichi, Mitsuharu; Ichanagi, Naoto
PATENT ASSIGNEE(S): Kurita Water Industries, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 62279804	A	19871204	JP 1986-123091	19860528
PRIORITY APPLN. INFO.:			JP 1986-123091	19860528

ED Entered STN: 19 Mar 1988
AB A membrane structure useful for filtering solids from liqs. has a porous layer of granules, e.g., metal oxides, clay, and activated C, containing a **biodegradable binder**, e.g. chitosan, polysaccharides, and biopolymer on one side of a permeable membrane. The solid deposit on the porous layer is easily peeled off during filtration and the membrane filterability is improved due to the utilization of the **biodegradable binder.** Stable filtration is maintained without washing the membrane. Thus, chitosan 1000 and α-Fe2O3 100 mg/L granules (average diameter: 3 μ) were mixed with an untreated **organic wastewater** and the mixture was filtered at 2 kg/cm2 and 2 m/s through a tubular ultrafiltration membrane of polysulfone to form a porous layer on the membrane, and then anaerobically treated effluent was filtered under the same condition through the prepared porous layer and the membrane. The filterability was improved in comparison with that without the porous layer.
IC ICM B01D013-00
ICS B01D013-04

CC 48-1 (Unit Operations and Processes)
Section cross-reference(s): 60
ST membrane sepn biodegradable porous layer; filterability improvement membrane porous layer; chitosan **biodegradable binder** porous layer; polysaccharide **biodegradable binder** porous layer; biopolymer **biodegradable binder** porous layer; metal oxide granule porous layer; activated carbon granule porous layer; clay granule porous layer; polysulfone tubular ultrafiltration membrane wastewater
IT Biopolymers
Polysaccharides, uses and miscellaneous
(**binder**, **biodegradable**, in porous layer on permeable membranes for liquid filterability improvement)
IT Wastewater treatment
(membrane separation, of anaerobically treated effluent, porous layer for, granules and **biodegradable binder** in)
IT Filtering materials
(membranes, for liquid filterability improvement, porous layer on, granules and **biodegradable binder** in)

=> d 30-35 ibib abs ind

L60 ANSWER 30 OF 35 JAPIO (C) 2007 JPO on STN
ACCESSION NUMBER: 1998-296214 JAPIO Full-text
TITLE: GARBAGE TREATING DEVICE
INVENTOR: UMEDA AKIHIRO; HIROTA HIROMI; NUKINA YASUYUKI; NISHIDA HIROSHI
PATENT ASSIGNEE(S): MATSUSHITA ELECTRIC IND CO LTD
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 10296214	A	19981110	Heisei	B09B003-00

APPLICATION INFORMATION
STN FORMAT: JP 1997-110732 19970428
ORIGINAL: JP09110732 Heisei
PRIORITY APPLN. INFO.: JP 1997-110732 19970428
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1998
AN 1998-296214 JAPIO Full-text
AB PROBLEM TO BE SOLVED: To enable garbage to be disposed of on the spot without conveying the garbage by providing a means to remove surplus microbes sticking to a filtration bed in a **biodegradation** tank for **biodegrading** the garbage produced by crushing through a crushing device with the help of microbes. SOLUTION: Garbage loaded from the drainage port of a sink table is crushed into fine **pieces** by a crushing device 1 and the fine **pieces** are transferred to an adjustment tank 2 together with **water** flowing in from the drainage port of the sink table. Further, the fine **pieces** are hydrolyzed in the adjustment tank 2 into a **water** soluble **organic matter** which is, in turn, caused to flow down to a **biodegradation** tank 4. In the **biodegradation** tank 4, a filtration bed 8 and a scraping bar 9 which is fixed to a shaft 10 rotated by a drive motor 11 are arranged. Surplus microbes which proliferate on the surface of the filtration bed 8 are removed by a scraping action by rotating the scraping bar 9. Thus it is possible to load the garbage into the crushing device 1 on the spot and dispense with a garbage conveying operation.

IC ICM B09B003-00

L60 ANSWER 31 OF 35 JAPIO (C) 2007 JPO on STN
ACCESSION NUMBER: 2005-102669 JAPIO Full-text
TITLE: MATERIAL FOR TREATING **ORGANIC WASTE** AND METHOD FOR MANUFACTURING THE SAME
INVENTOR: HARA YUTAKA
PATENT ASSIGNEE(S): HARA YUTAKA
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 2005102669	A	20050421	Heisei	A01K001-015

APPLICATION INFORMATION
STN FORMAT: JP 2003-376274 20031001
ORIGINAL: JP2003376274 Heisei
PRIORITY APPLN. INFO.: JP 2003-376274 20031001
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2005
AN 2005-102669 JAPIO Full-text
AB PROBLEM TO BE SOLVED: To obtain material for treating **organic wastes** suitable to the environment which can treat excretion and the like of pets through decomposition or extermination treatment such as bringing organic materials to have lower molecular weight, decomposition and adsorption, **biodegradation** treatment by microorganism activity and the like, and excellent in the aspect of disposal after use.
SOLUTION: The material for treating **organic wastes** is provided by mixing and kneading a main catalyst material 1 composed of a porous organic material such as porous powdery wood material or the like having high water retainability and air permeability, a porous auxiliary catalyst material 2 having adsorbing power for odors and improved in granulation hardness with a **binder** 3 composed of organic material having catalytic function for easily culturing and immobilizing enzymes to obtain a mixture having suitable hardness for setting enzyme material 4, adding the enzyme material to the mixture and culturing the mixture to set the enzyme, subsequently mixing, kneading and molding the mixture to obtain the spherical, granular or flaky material for treating **organic wastes.**
COPYRIGHT: (C)2005,JPO&NCIPI
IC ICM A01K001-015
ICS B09B003-00; C02F011-02

L60 ANSWER 32 OF 35 JAPIO (C) 2007 JPO on STN
ACCESSION NUMBER: 2003-010820 JAPIO Full-text
TITLE: CONTAINER FOR DISPOSING **ORGANIC WASTE**
INVENTOR: NAKAJI KOJIRO
PATENT ASSIGNEE(S): SANKO:KK
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 2003010820	A	20030114	Heisei	B09B003-00

APPLICATION INFORMATION
STN FORMAT: JP 2001-204779 20010705
ORIGINAL: JP2001204779 Heisei
PRIORITY APPLN. INFO.: JP 2001-204779 20010705
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2003
AN 2003-010820 JAPIO Full-text

AB PROBLEM TO BE SOLVED: To provide a container which can be eco-friendly disposed of together with **organic waste** such as garbage and, and is easy to handle for any user. SOLUTION: This container for disposing of the **organic waste** has a **water**- resistant and **biodegradable** Thomson paper box 2 installed inside of a paper bag 1. The Thomson paper box 2 has a fermentation promoter 5 which can be activated through contacting with **water**. The paper box 2 is preferably used by folding and combining at least two **pieces** of sheets. The fermentation promoter 5 is preferably used by putting it in a **water**-absorbing paper envelope. COPYRIGHT: (C)2003,JPO

IC ICM B09B003-00 .

L60 ANSWER 33 OF 35 JAPIO (C) 2007 JPO on STN
ACCESSION NUMBER: 2000-038604 JAPIO Full-text
TITLE: MOLDABLE PRODUCTION OF SINTERED BODY
INVENTOR: ITO SHIZUE; HIRAISHI HISATO
PATENT ASSIGNEE(S): CITIZEN WATCH CO LTD
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 2000038604	A	20000208	Heisei	B22F003-10

APPLICATION INFORMATION
STN FORMAT: JP 1999-122662 19990428
ORIGINAL: JP11122662 Heisei
PRIORITY APPLN. INFO.: JP 1998-139342 19980521
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2000

AN 2000-038604 JAPIO Full-text
AB PROBLEM TO BE SOLVED: To reduce environmental loads, to improve the safety and to increase the precision of the product by holding a molded body obtd. by mixing inorganic fine powder and the organic **binder** components of a **biodegradable** resin in water containing a decomposing enzyme to decompose the **biodegradable** resin and sintering the obtd. degreased body. SOLUTION: Fine powder of an oxide or the like of aluminum, stainless steel or the like is mixed with at least one kind of **biodegradable** resin such as a polyester resin to produce a compound, which is subjected to extrusion molding. An obtd. molded body is held in water containing a decomposing enzyme having the action of decomposing the **biodegradable** resin, the resin is degraded into dimers, monomers or the like, which are eluted and removed, thereby the degreasing is executed. As this time, at need, plural kinds of **biodegradable** resins and plural kinds of decomposing enzymes are used, or, as the organic **binder** components, a non-**biodegradable** resin or a low molecular **organic matter** is contained, and, moreover, the temperature or the concentration of hydrogen ions in water containing the decomposing enzyme are controlled to maximize the activity of the enzyme. COPYRIGHT: (C)2000,JPO
IC ICM B22F003-10
ICS B22F003-02; C04B035-638

L60 ANSWER 34 OF 35 COMPENDEX COPYRIGHT 2007 EEI on STN
ACCESSION NUMBER: 2000(33):1639 COMPENDEX Full-text
TITLE: Assessing **biodegradable organic matter**.
AUTHOR: Volk, Christian J. (American Water Works Service Co, IL, USA); LeChevallier, Mark W.
SOURCE: Journal / American Water Works Association v 92 n 5 2000.p 64-76
SOURCE: Journal / American Water Works Association v 92 n 5 2000.p 64-76
CODEN: JAWWA5 ISSN: 0003-150X

PUBLICATION YEAR: 2000
DOCUMENT TYPE: Journal
TREATMENT CODE: Bibliography; Experimental
LANGUAGE: English
AN 2000(33):1639 COMPENDEX Full-text
AB This article summarizes data collected during various surveys that assessed four aspects of **biodegradable organic matter** (BOM) in drinking water: (1) BOM concentrations entering distribution systems, (2) the relationship between concentrations of assimilable organic carbon (AOC) and **biodegradable** dissolved organic carbon (BDOC), (3) field tests of a simple method of measuring BDOC using bioreactors, and (4) the effect of BOM on coliform occurrences in distribution networks.Overall, average concentrations of AOC and BDOC in plant effluent were 100 mu g/L and 0.32 mg/L, respectively. A statistically significant but weak relationship between AOC and BDOC concentrations suggests that both parameters need to be monitored during biostability studies because they provide different **pieces** of information.BDOC bioreactors are useful for measuring BDOC concentrations at water utilities.However, they require a long time to colonize and must adapt to water at the site where they are used.Coliform occurrences were associated with three factors: temperature, disinfectant type and concentration, and AOC concentration.When threshold values for these factors were exceeded (15 degree C, AOC greater than 100 mu g/L, and dead-end disinfectant residuals less than 0.5 mg/L for free chlorine or 1.0 mg/L for chloramines), the probability of coliform occurrences greatly increased.(Author abstract) 51 Refs.
AN 2000(33):1639 COMPENDEX Full-text
CC 446.1 Water Supply Systems; 445.2 Water Analysis; 801.2 Biochemistry; 801 Chemistry; 461.9 Biology; 461.8 Biotechnology
CT *Water distribution systems; Composition effects; Coliform bacteria; **Biodegradation**; Carbon; Bioreactors; Thermal effects; Disinfectants; Water bacteriology; Water analysis
ST Dissolved organic carbon (DOC); Biostability; Assimilable organic carbon (AOC); Water utilities; Chloroamine
ET C

L60 ANSWER 35 OF 35 COMPENDEX COPYRIGHT 2007 EEI on STN
ACCESSION NUMBER: 1998(52):2717 COMPENDEX Full-text
TITLE: Location of protein and polysaccharide hydrolytic activity in suspended and biofilm wastewater cultures.
AUTHOR: Confer, David R. (Univ of Arizona, Tucson, AZ, USA); Logan, Bruce E.
SOURCE: Water Research v 32 n 1 Jan 1998.p 31-38
SOURCE: Water Research v 32 n 1 Jan 1998.p 31-38
CODEN: WATRAG ISSN: 0043-1354
PUBLICATION YEAR: 1998
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
LANGUAGE: English
AN 1998(52):2717 COMPENDEX Full-text
AB Macromolecular compounds such as proteins and polysaccharides can comprise a significant portion of dissolved **organic** carbon in **wastewater**, but limited information is available on how these compounds are degraded in biological wastewater treatment systems. Bacteria cannot assimilate intact macromolecules but must first hydrolyze them to monomers or small oligomers.Whether this hydrolysis occurs in contact with cells or by enzymes released into bulk solution is critical to an understanding of macromolecule metabolism. This study used the fluorescent model substrate analogs L-leucine-7-amido-4-methylcoumarin center dot HCl (Leu-MCA) and 4-methylumbelliferyl- alpha -glucoside (MUF- alpha -glc) to determine the location of leucine aminopeptidase and alpha -glucosidase activity in wastewater inoculated

biofilm and suspended cultures and in trickling filter effluent. In biofilm cultures, no more than 3% of total hydrolytic activity was located in the cell-free bulk solution. Similar results were obtained in suspended culture where 97% of leucine aminopeptidase and 93% of alpha -glucosidase activity occurred in contact with cells. In trickling filter effluent, hydrolysis was also predominantly cell-associated. Hydrolysis rates were at least five times higher in contact with cells and sloughed biofilm **pieces** than in cell-free solution. When considered with the results of other experiments demonstrating that hydrolytic fragments of proteins and polysaccharides accumulate in bulk solution during macromolecule degradation, these experiments support a generalized mechanism for macromolecule degradation that features cell-associated hydrolysis followed by the release of hydrolytic fragments back into bulk solution. This cell-associated hydrolysis and release is repeated until hydrolytic fragments are small enough to be assimilated by cells. Use of this macromolecule degradation mechanism can help refine wastewater treatment models so that they can more accurately predict the performance of bioreactors treating complex wastewaters.(Author abstract) 28 Refs.

AN 1998(52):2717 COMPENDEX Full-text

CC 452.4 Industrial Wastes Treatment; 802.3 Chemical Operations; 462.5 Biomaterials; 802.2 Chemical Reactions; 804.1 Organic Components; 815.1.1 Organic Polymers

CT *Wastewater treatment; Bacteria; Hydrolysis; Proteins; Polysaccharides; Macromolecules; Cell culture; Solutions; **Biodegradation**; Biofilms

ST Biofilm wastewater culture; Macromolecule degradation

ET Cl*H; HCl; H cp; cp; Cl cp

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=> d his nofile

     (FILE 'HOME' ENTERED AT 11:39:19 ON 05 OCT 2007)

     FILE 'HCAPLUS' ENTERED AT 11:39:31 ON 05 OCT 2007
L1             1 SEA ABB=ON  PLU=ON  US20040127355/PN

     FILE 'WPIX' ENTERED AT 11:39:50 ON 05 OCT 2007
L2             1 SEA ABB=ON  PLU=ON  US20040127355/PN
L3               QUE ABB=ON  PLU=ON  ORGANIC(2A)(WASTE? OR MATTER? OR
                 SOLID? OR TRASH? OR GARBAGE?)
L4           544 SEA ABB=ON  PLU=ON  L3 AND BIODEGRAD?
L5           568 SEA ABB=ON  PLU=ON  L3 AND (BIODEGRAD? OR BIO(A)DEGRAD?)
L6           201 SEA ABB=ON  PLU=ON  L5 AND SOLID?
L7            24 SEA ABB=ON  PLU=ON  L6 AND (ODOR? OR ODOUR? OR SMELL?)
L8             1 SEA ABB=ON  PLU=ON  L7 AND L2
L9             1 SEA ABB=ON  PLU=ON  L7 AND (DRY OR DRIED)(2A)PIECE?
L10           13 SEA ABB=ON  PLU=ON  L7 AND (HEAT? OR TEMP?)
L11            1 SEA ABB=ON  PLU=ON  L7 AND (BIODEGRAD? OR BIO(A)DEGRAD?)(3A
                 )BINDER
L12           24 SEA ABB=ON  PLU=ON  (L7 OR L8 OR L9 OR L10 OR L11)
L13            2 SEA ABB=ON  PLU=ON  L12 AND   B09B0001?/IPC
L14              QUE ABB=ON  PLU=ON  ORGANIC(2A)(WASTE? OR MATTER? OR
                 TRASH? OR GARBAGE?)
L15           21 SEA ABB=ON  PLU=ON  L14 AND L12
L16            2 SEA ABB=ON  PLU=ON  L15 AND CARBOHYDRAT?
L17           14 SEA ABB=ON  PLU=ON  L15 AND (WATER OR LIQUID WATER)
L18           21 SEA ABB=ON  PLU=ON  (L15 OR L16 OR L17)
L19           18 SEA ABB=ON  PLU=ON  L18 AND (PY<2003 OR PRY<2003 OR
                 AY<2003)

     FILE 'HCAPLUS' ENTERED AT 11:53:43 ON 05 OCT 2007
L20       125121 SEA ABB=ON  PLU=ON  ORGANIC(2A)(WASTE? OR MATTER? OR
                 TRASH? OR GARBAGE?)
L21            5 SEA ABB=ON  PLU=ON  L20 AND (BIODEGRAD? OR BIO(A)DEGRAD?)(3
                 A)BINDER
L22         5250 SEA ABB=ON  PLU=ON  L20 AND (BIODEGRAD? OR BIO(A)DEGRAD?)
L23            0 SEA ABB=ON  PLU=ON  L22 AND (DRY OR DRIED)(2A)PIECE?
L24          108 SEA ABB=ON  PLU=ON  L22 AND (ODOR? OR ODOUR? OR SMELL?)
L25            1 SEA ABB=ON  PLU=ON  L20 AND L1
L26            0 SEA ABB=ON  PLU=ON  L20 AND  B09B003?/IPC
L27         2620 SEA ABB=ON  PLU=ON  L20 AND  B09B003?/IC
L28           41 SEA ABB=ON  PLU=ON  L27 AND MICROBIAL?
L29            0 SEA ABB=ON  PLU=ON  L28 AND PICES?
L30            1 SEA ABB=ON  PLU=ON  L28 AND PIECE?
L31            3 SEA ABB=ON  PLU=ON  L28 AND (ODOR? OR ODOUR? OR SMELL?)
L32            8 SEA ABB=ON  PLU=ON  L21 OR L23 OR (L25 OR L26) OR (L29 OR
                 L30 OR L31)
L33            4 SEA ABB=ON  PLU=ON  L28 AND CARBOHYDRAT?
L34           12 SEA ABB=ON  PLU=ON  L32 OR L33

     FILE 'PASCAL' ENTERED AT 12:01:19 ON 05 OCT 2007
L35        39425 SEA ABB=ON  PLU=ON  ORGANIC(2A)(WASTE? OR MATTER? OR
                 TRASH? OR GARBAGE?)
L36            0 SEA ABB=ON  PLU=ON  L35 AND (BIODEGRAD? OR BIO(A)DEGRAD?)(3
                 A)BINDER
L37         4681 SEA ABB=ON  PLU=ON  L35 AND MICROBIAL?
L38            0 SEA ABB=ON  PLU=ON  L37 AND (CARBOHYDRAT?(3A)BINDER? OR
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                BINDER?)
L39           18 SEA ABB=ON  PLU=ON  L37 AND  (ODOR? OR ODOUR? OR SMELL?)
L40            0 SEA ABB=ON  PLU=ON  L38 AND (DEVICE? OR APPARATUS?)
L41            0 SEA ABB=ON  PLU=ON  L36 OR L38 OR L40
L42            7 SEA ABB=ON  PLU=ON  L39 AND (WATER OR LIQUID WATER)
L43            3 SEA ABB=ON  PLU=ON  L42 AND (BIODEGRAD? OR BIO(A)DEGRAD?)
L44         1028 SEA ABB=ON  PLU=ON  L37 AND TREAT?
L45            1 SEA ABB=ON  PLU=ON  L44 AND PIECE?

     FILE 'JAPIO' ENTERED AT 12:06:18 ON 05 OCT 2007
L46            1 SEA ABB=ON  PLU=ON  L35 AND (BIODEGRAD? OR BIO(A)DEGRAD?)(3
                A)BINDER

     FILE 'JAPIO' ENTERED AT 12:14:44 ON 05 OCT 2007
L47         9307 SEA ABB=ON  PLU=ON  ORGANIC(2A)(WASTE? OR MATTER? OR
                TRASH? OR GARBAGE?)
L48          128 SEA ABB=ON  PLU=ON  L47 AND (BIODEGRAD? OR BIO(A)DEGRAD?)
L49            0 SEA ABB=ON  PLU=ON  L48 AND CARBOHYDRAT?(3A)BINDER?
L50            2 SEA ABB=ON  PLU=ON  L48 AND BINDER
L51           70 SEA ABB=ON  PLU=ON  L48 AND (WATER OR LIQUID WATER)
L52            2 SEA ABB=ON  PLU=ON  L51 AND PIECE?
L53            4 SEA ABB=ON  PLU=ON  L46 OR L49 OR L50 OR L52

     FILE 'COMPENDEX' ENTERED AT 12:16:55 ON 05 OCT 2007
L54            0 SEA ABB=ON  PLU=ON  L35 AND (BIODEGRAD? OR BIO(A)DEGRAD?)(3
                A)BINDER
L55         1165 SEA ABB=ON  PLU=ON  L47 AND (BIODEGRAD? OR BIO(A)DEGRAD?)
L56            0 SEA ABB=ON  PLU=ON  L55 AND (CARBOHYDRAT?(3A)BINDER? OR
                BINDER)
L57            0 SEA ABB=ON  PLU=ON  L55 AND SOLID?(3A)PIECE?
L58            2 SEA ABB=ON  PLU=ON  L55 AND PIECE?
L59            2 SEA ABB=ON  PLU=ON  L54 OR (L56 OR L57 OR L58)

     FILE 'WPIX, HCAPLUS, JAPIO, COMPENDEX' ENTERED AT 12:20:17 ON 05 OCT
     2007
L60           35 DUP REM L19 L34 L41 L53 L59 (1 DUPLICATE REMOVED)
                    ANSWERS '1-18' FROM FILE WPIX
                    ANSWERS '19-29' FROM FILE HCAPLUS
                    ANSWERS '30-33' FROM FILE JAPIO
                    ANSWERS '34-35' FROM FILE COMPENDEX
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